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ABSTRACT

These 24 papers represent the proceedings of a program presented by the research network on vocational education and training (VET). They include "School-Arranged or Market-Governed Workplace Training?" (Ulla Arnell-Gustafsson); "Prospects for Mutual Learning and Transnational Transfer of Innovative Practice in European VET" (Alan Brown, Jens Bjornavold); "Powerful Learning Environments in Vocational Education" (Elly de Bruijn, Trudy Moerkamp); "Searching for the Meanings of Learnings at Work" (Kaija Collin); "Induced Labor Mobility Through Continuing Vocational Training" (M'hamed Dif); "Expectancies and Realities--Evaluations and Research on Engineering Students' Experiences of Their First Semesters" (Elinor Edvardsson-Stiwne, Dan Stiwne); "International Dimension in Dutch VET" (Wil Van Esch); "Demand of Education as a Strategic Demand in a Context of Job Rationing and Job Scarcity" (Benedicte Gendron); "Learning and Work Experience" (Toni Griffiths, David Guile); "Alternance and Workplace Training: Interns' Experiences" (Marcelle Hardy, Carmen Parent); "FLEX-VET Project in Finland: Vocational Training Including Mechatronics and the Training Needs of the Finnish Metal Industry" (Lilli Heiskanen, Pauliina Jokinen); "Learner/Manager's Uncertainty of Their Capacity for Innovative Problem Solving: Information-and-Communication Technology Based Solution" (M.E.A. Holmes, S.A. Geertshuis, D. Clancy, A. Bristol); "'Key Qualifications'--A New Framework for Analyzing the Modernization of Vocational Qualifications and Curricula" (Pekka Kamarainen); "What Can We Learn from Dually Oriented Qualifications?" (Sabine Manning); "End User Computing at a South African Technikon" (Cecille Marsh); "New Deal and the

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Vocational Education
and Training Research
VETNET

VETNET ECER 2000 Proceedings

Current research in European vocational education and human resouce development

Editors: Sabine Manning & David Raffe

Research Forum WIFO
Berlin

Proceedings of the programme presented by the research network on vocational education and training (VETNET) at the European Conference of Educational Research (ECER) in
2 Edinburgh, 20-23 September 2000

Programme Chair: David Raffe

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School-arranged or market-governed workplace training? A labour-market perspective.

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Introduction

In times of recession, youth unemployment has tended to be one of the greatest problems on the labour market. This was the case at the beginning of the 1980s, and also during the1990s, in most European countries. In Sweden, with its tradition of an active labour-market policy, various measures against youth unemployment have been discussed and tried. In the 1990s, *workplace training* was a major characteristic of labour-market measures taken for young people. In 1992 a youth-training scheme was introduced, specially directed at young people. This was replaced in 1995 with a more general programme for all age groups. In both programmes, workplace training was a crucial factor.

However, more structural features have been discussed within the confines of the Swedish model for school-to-work transition. In Sweden, initial vocational education is mostly school-based, which in some respects is regarded as a problem. One argument is that a school-based system will create a barrier between the worlds of school and work. On this view, young people do not obtain make contacts with employers, and their socialisation into work-life is delayed. Different types of apprenticeships have been discussed and tried in Sweden, and contacts between schools and workplaces have been encouraged.

In 1991 a school reform was decided upon, which entailed some changes to the original vocational education. One aspect was that learning in the workplace should apply to all vocational programmes. At least 15 weeks of training during the three years of vocational upper-secondary (high-school) education should be located in the workplace. The workplace should have a supervisor with responsibility for the student, who would give him or her interesting and educational tasks, and also provide the school with a written report. Normally, the student would not be paid for time spent in the workplace. Before the reform, most vocational programmes had elements of workplace training, but these varied considerably between programmes. For example, the Health Care and Building/Construction programmes have always had a considerable element of practical learning in the workplace. The special aspect of the reform of 1991 lay in its generality; workplace learning, for at least 15 weeks during three years, should be common to all vocational programmes at upper-secondary school.

What advantages does workplace learning have to offer? Some points are as follows:

a) Students obtain more up-to-date knowledge than at school, concerning, for example, modern machinery and modern work methods. They are given opportunities to apply their theoretical education to real situations.

b) Students are gradually introduced to the norms and values of working life. They get used to the "climate" and "reality" of working life.

c) Students obtain contacts that might lead to a job on the regular labour market.

d) Many students in vocational programmes appreciate workplace training as a contrast to more theoretical education at school; they are more motivated to learn.

School-arranged workplace training is one type of workplace training available to students, but it is not the only one. They also obtain workplace training directly through the labour market. Many students work at the same time as attending school. In fact, a majority of students on vocational programmes in Sweden have experience of workplace training both arranged by their school ("public") and obtained via their own searching on the labour market. We call the latter *market-governed workplace training*.

What are the differences between these two types of workplace training? And what are their similarities? With reference to Point a) above – that workplace training can give more up-to-date knowledge concerning machinery and work methods – school-arranged and market-governed workplace training are not fully comparable. The main purpose of school-arranged training is to weave together practical and theoretical learning within the particular sector at which the vocational education is aimed. Thus, workplaces are selected to fulfil that purpose. By contrast, it is not at all sure that market-governed workplace training will lie within the same sector as the student's vocational education. Even if jobs found on the market can promote some vocational skills, it is not certain that they can be merged with theoretical school education. Further, Point d) – that workplace training can motivate students in theoretical studies – applies mainly to school-arranged training. The contrast here is with the more academic education provided at school.

Concerning the two other points, however, school-arranged and market-governed workplace trainings are more comparable. Point b) deals with general knowledge about work-life, what it is like to be a youth among adults, and rights and duties in work-life. All this applies to both types of training, and it might even be so that market-governed work-life practice provides a better introduction than its school-arranged counterpart in this context. The young person works on the same terms as others, and he is paid for doing his work. Point c) also applies to both types of practice. Both school-arranged and market-governed work can give contacts that might help with introduction to the labour market after leaving school.

But, of course, there are also crucial differences between the two types of work-life training. The most important has already been mentioned. School-arranged workplace training is included in school education. It must be provided to all students, and is justified by its educational value. Market-governed practice is something found by the student himself, on the conditions prevailing on the market. Thus, there is selection into the latter; students who work during high school want to do so, and also have the capability to find a job. The other important difference is that school-arranged practice is not paid whereas market-governed practice is. Thus, there can be a situation – and in reality it often exists – where students do the same job with pay (as an ordinary employee) and without pay (as high-school practice).

Purpose of the paper

The principal purpose of this paper is to study school-arranged workplace training from a labour-market perspective. Does it make school-to-work transition easier? Do young people who have received school-arranged workplace training succeed better on the labour market than those who have not? As comparison, we look at students who have worked on the regular labour market while at school. By contrast with *school-arranged* they have received *market-governed* workplace training. Three measures of "succeeding on the labour market" are employed. The first is to avoid unemployment. The second is to work in a "target" or "preferred" job. The third concerns personal attitudes to future chances/prospects on the labour market.

Initially, however, we look at market-governed workplace training from a distributive perspective. Who works while attending high school? Are there differences between boys and girls? Or, between students from different social backgrounds? Does the unemployment level locally have any impact on how many students work while at school? Very similar questions are asked about school-arranged workplace practice. However, here the perspective is more evaluative. Do all students obtain school-arranged workplace practice? If not, is there any systematic bias in who receives it and who does not? Are there any differences between boys and girls or between students from different social backgrounds? Does the unemployment rate in the local municipality have any implications for the implementation of school-arranged workplace training?

Earlier studies

Working when at high school

Several surveys in Sweden show that around 55 and 80 percent of students at upper-secondary school work while still conducting their studies. Different surveys give different figures in this range according to when they are performed, how the questions are formulated, and which population is chosen. Two relatively comparable investigations were conducted by Statistics Sweden, and include young people who left upper-secondary school in 1983/84 and 1994/95 (Statistics Sweden 1989, 1998). 65 and 62 percent respectively stated that they had worked alongside their high-school studies, either on weekdays after school, at weekends or during holidays. Both studies were performed during economic recessions, and presumably the figures are higher in times of prosperity.

According to two smaller, local studies performed in better economic times, 74 and 77 percent of students worked alongside upper-secondary school (Czaplicka & Ekerwald 1986, Blomqvist 1988). Most studies show that girls work more than boys, and students on academic programmes more than those on vocational programmes. This latter phenomenon might be due to the fact that vocational programmes in Sweden used to be for two years only, which included one summer holiday less than the three-year academic programmes. And it is during the holidays that most young people work. Of the young people leaving upper-secondary school in 1994/95, 31 percent had worked during weeks/weekends and 42 percent during holidays.

Does working alongside high school have any significance for later establishment on the labour market? The studies available operationalise "establishment" in different ways. For example, a study from Statistics Sweden in 1983 showed that among 20 year-olds who had gone through an upper-secondary education, 39 percent of those who had been working as well as studying *had been unemployed at some time,* compared with 54 percent of those who had not been working. Further, the latter had longer periods of unemployment than the former (Statistics Sweden 1985, p 37).

In another study from 1988 "establishment on the labour market" was interpreted as having obtained a *permanent job*. This study also showed that working alongside upper-secondary studies was positively associated with relatively early establishment on the labour market.

However, the relation varied between different types of vocational education (Statistics Sweden, 1989, pp. 16-17).

In a third study, establishment meant "*those who had a job nine months after the end of upper-secondary school*". The results were in correspondence with those of the earlier studies. More students who had been working while at school had a job nine months after leaving compulsory school than those who had not been working (Statistics Sweden 1997).

School-arranged workplace training.

How many students actually receive school-arranged workplace training is primarily a matter of implementation. To what degree does school and work-life succeed in implementing the goal that students on vocational programmes at upper-secondary school have at least 15 weeks education in the workplace? The explicit goal is that all students have this education, and no students should be treated unfairly.

Has the goal been fulfilled? A study from Sweden's National Agency for Education shows that an average of 63 percent of all students receive school-arranged workplace training for at least 15 weeks. However, there are great variations between different high-school programmes. In, for example, the Child Recreation Programme and the Health Care Programme, 88 percent of students receive workplace training for at least 15 weeks. On the other hand, in the Media Program and the Electrical Engineering programmes, the figures are only 29 and 25 percent respectively. Figures for the remaining programmes lie between these extremes. The study is based on a questionnaire, to which 570 persons, responsible for workplace training at 187 schools, responded (Skolverket 1998, pp. 12-13).

Accordingly, which high-school programme the student pursues seems to be very important in terms of his or her opportunity to obtain workplace training. There are no studies, however, showing whether personal characteristics, such as gender, socio-economic background, ethnicity etc., have any importance for whether a student receives workplace training. It is not at all an impossibility that this might be the case. High-school teachers must rely on the good will of local firms to offer practice places. At the same time, there is often a lack of such places. To expect local firms to offer places to students who may have different kinds of problems might endanger the good relationship between the school and the firm on which the school is dependent. From interviews with teachers and employers, it appears that this can be a problem. Sometimes, employers want to select the students who come to their workplaces (Meyer, 1999, p 6).

Has school-arranged workplace training any impact on later success on the labour market? This question is not much treated in Swedish research. Evaluations of school-arranged workplace training have still not addressed the question. Nevertheless, some sketchy descriptions are available, where young people have subjectively assessed the significance of school-arranged workplace training to their own labour-market success; the impression is that work practice has been of some importance (SCB 1997).

Data

A representative, stratified sample of 6,388 young people responded to a questionnaire, three years and ten months after having left compulsory school in 1993. The data were collected in May 1997, and form part of the set of standard follow-up studies conducted by Statistics Sweden. Since most young people in Sweden (over 90 percent) continue into three-year upper-secondary (high) school, this means that most of the questionnaires were replied to ten months after the students had finally left school. The weighted non-response rate was 20.2 percent. From this material, the young people who had finished vocational upper-secondary education in 1996 were selected – a total of 3,465 individuals. The samples were stratified according to high-school programme, and (in most cases) according to gender.

Variables and analytic strategy

The first measure of "succeeding on the labour market" is to have *avoided unemployment* during the first eight months after leaving upper-secondary school. In the questionnaire, young people were asked about their activities, in terms of education and on the labour market, month by month. Thereafter, number of months in unemployment or on government-sponsored work programmes were counted, and a dichotomous variable created: those who during their first eight months after school had ever been unemployed/on government work programmes, and those who had not. The former category contained 47 percent of respondents, and the latter 53 percent.

The second measure of "succeeding on the labour market" is *work in "target job"*. This means that the young person, during a specific week (nine months after finishing school), had a job in correspondence with the type of vocational education he or she had gone through. This was measured by a direct question: "How well did the work you had in the week 17-23 of March 1997 correspond to your education?" There were three response alternatives: "The work was mostly in correspondence with my education", "The work was in another field than my education", "My education was not directed at any specific kind of work". For purposes of analysis, the two latter response alternatives were put together. Since this question applies to a specific week, the number of people for whom it is valid is markedly reduced. Further studies, military service, etc. are competing activities. Only 1,233 persons answered the question, which meant that the number of variables in the logistic-regression analysis had to be reduced.

The third measure of "succeeding on the labour market" was an item concerned with *attitude to future chances on the labour market*: "How do you regard your chances of having a permanent job position in four to five years? " The response alternatives were "very big", "rather big", "rather small" and "very small", which – in the analysis – were dichotomised into "big" and "small".

Experiences of both *market-governed and school-arranged workplace training* were accessed through subjective questions. The students were asked directly if they had worked alongside their studies in upper-secondary school – in the week, at the weekends, or during holidays. They were also asked to estimate how many weeks they had received school-arranged workplace practice.

What is termed *stratum* in this study is our stratification variable, which was determined by a combination of the education and the gender of the individual. Education was categorised in terms of the programme taken in upper-secondary (high) school. In most cases, boys and girls were found to be separate in this respect, and formed different strata. The programmes that were strongly dominated by one gender, however, were not divided. The variable is divided into 24 different categories and, compared with other studies, is well-defined and specified.

Socio-economic status of parents was determined by their occupations. The classification is based on the standard system used in official Swedish statistics. The categories are "Non-skilled workers", "Semi-skilled workers and lower-level white-collar workers", "Middle-level white-collar workers", "Upper-level white-collar workers", "Self-employed people", and "Farmers". Socio-economic status of a family where parental occupations fell into different categories was determined as in official Swedish statistics. The rule is that the highest socio-economic status is chosen to characterise that of the family (Statistics Sweden 1995).

Ethnicity was categorised in terms of whether an individual was born in Sweden or not. This is, of course, a crude categorisation, but the relatively few subjects in the sample who had been born outside Sweden would have made any finer classification problematic.

Unemployment rate in the municipality where the person lived at time of interview consisted of five categories: municipalities with 0-4.99 percent, 5.00-7.49 percent, 7.50-9.99 percent, 10.00-12.49 percent, and 12.50 percent or more unemployed or on government-sponsored work programmes respectively. These figures relate to the population in the age range 16-64, and not to the labour force as a whole, which means that the proportions are somewhat lower than those given in Sweden's official statistics.

The statistical method employed was multiple logistic regression, for which boys and girls were treated separately. The reason for this was that boys and girls are distributed very unevenly across different high-school programmes. For example, in the programmes for Building/Construction and Vehicle nearly 100 percent are boys. The results are shown as odds ratios. For every variable in the analysis, there is a reference group with a value of 1. A figure higher than 1 means that the impact on the dependent variable is increased, a figure lower than 1 that the impact is decreased. Roughly speaking, an odds ratio of 2 means that the impact is doubled, and an odds ratio of 1.5 that the impact is about one and a half times as great as on the reference group. A confidence interval (95 percent) is given for each odds ratio as a measure of the certainty of the estimation. How well the model fits the data is measured by Nagelkerke R^2.

Results

Tables 1 and 2 show simple cross-tabulations between market-governed and school-arranged workplace practice for boys and girls.

Table 1 in about here

Table 2 in about here

It can be seen that girls have more workplace training than boys, both market-governed and school-arranged. The latter difference can probably be explained by the fact that boys and girls are highly segregated by programme at high school. Many girls have gone through programmes where the implementation of workplace training is high. For example, girls predominate on the Health Care Program and the Child Recreation Program, where as many as 88 percent of students receive workplace training. In a separate analysis of other high-school programmes, the gender difference virtually disappeared. Concerning market-governed workplace training, however, gender differences remained, at least partially, even after controlling for programme. In the case of the Business and Administration Programme, 57 percent of girls and 46 percent of the boys had worked while at high school; and, in the case of the Health Care Program, 75 percent of girls and 62 percent of boys.

There are some interesting differences between results from the present material and findings obtained by Sweden's National Agency for Education concerning the implementation of school-arranged workplace training. The National Agency for Education reports that 63 percent of students obtained workplace training, in contrast to our figure of 40 percent. The difference might depend on many things, where the most obvious is that we base our results on responses from students, while the National Agency for Education base theirs on responses from high-school teachers responsible for the workplace training. Both groups might have given biased answers. Students might not really have understood the question, while teachers might wish to overestimate the number of students given workplace training.

Thus, gender seems, at least partially, to be related to market-governed workplace training. Tables 3 and 4, derived from the multivariate analysis, show other differences between those who work/do not work alongside school and those who obtain/do not obtain school-arranged workplace training. For statistical reasons, as mentioned earlier, the analysis was conducted separately for boys and girls.

Tables 3 and 4 in about here.

Concerning the implementation of school-arranged workplace training, the tables show that which programme you have gone through in upper-secondary school is important (for both boys and girls). The most striking result is that students on the Health Care Program receive workplace training to a high degree, which is in accordance with other evaluations. There are also some other significant associations between variables, in particular for boys. The most interesting one is that boys born outside Sweden obtain school-arranged workplace training to a lesser extent than boys born in Sweden. There is a tendency in the same direction for girls, but it is not statistically significant.

Concerning market-governed workplace training, however, we did not find any significant difference between immigrant and Swedish boys. To be the son of a farmer or a member of the self-employed seems to help boys get extra work, and the same tendency is detectable for girls (although it is not significant). For girls, it seems more important to come from a middle-level white-collar family. For both boys and girls, level of unemployment in the municipality seems to be important for the chance to work on labour-market terms. Studying on the Hotel, Restaurant and Catering Program seems to give good opportunities, for both boys and girls, to work while at high school; for girls, this is also the case for the Health Care Program.

School-arranged and market-governed workplace training and later success on the labour market

Has workplace training during upper-secondary school any importance for young people's later success on the labour market? We analyse this question by looking at three different criteria of labour-market success:

1) Avoid unemployment
2) Work in the "target job"
3) Believe that you have a permanent position on the labour market in about 4-5 years

The results are presented in two steps. As a first step (tables 5 and 6), we compare the impacts of school-arranged and market-governed workplace training on the two first criteria, namely on unemployment and being in the target job. At this step, we control for just one background variable, namely the programme pursued in upper-secondary school. (The reason for this lies in the fact that a relatively small number of young people answered the question on "target job"). At the second step (tables 7 and 8), we compare the impact of school-arranged and market-governed workplace training on the two last criteria, namely on unemployment and on attitude to future chances on the labour market. At this step, we control for several different variables, namely ethnicity, socio-economic status of the household, unemployment rate in the community, and also programme pursued in upper-secondary school.

Tables 5 and 6 in about here

Tables 5 and 6 show that market-governed workplace training has large and significant effects on avoiding unemployment, for both boys and girls. You are nearly three times more likely to avoid unemployment if you have worked on the regular labour market when at school than if you have not. Also, school-arranged workplace training seems to have some effect on unemployment; it is, however, much less than the effect of market-governed training, and for boys it is not significant. On the other hand, school-arranged workplace training seems to be positively correlated with the possibility of being in the "target job" nine months after having left school, for both boys and girls.

Tables 7 and 8 in about here.

Also, when the analysis is extended to include more variables, the relation between having worked while at school on the regular labour market and later success is fairly evident. Again, the finding is that you are nearly three times more likely to avoid unemployment if you have worked on the regular labour market when at high school than if you have not. And there is about twice as great a chance of your looking positively on personal opportunities on the labour market if you have worked alongside school than if you have not. Thus, market-governed workplace training when at school seems to be positively associated with market-governed work after having left school. School-arranged workplace training does not seem to have the same effect. Even though there is a relationship in the same direction – those who have had school-arranged workplace training have not been unemployed to the same degree and they have a more positive attitude to their future on the labour market than those who have not – the correlation is neither strong nor significant.

Discussion.

In Sweden, workplace training has been emphasised in both labour-market policy for young people and also in school policy during the 1990s. Regarding labour-market policy, there have been a lot of evaluations , which designed to estimate the effect of workplace training on opportunities on the labour market (Larsson, 2000, Schröder 1991, 2000, Sehlstedt & Schröder 1989). Regarding workplace training within the confines of school policy, however, evaluations from a labour-market perspective have been largely neglected, although there are some evaluations from other perspectives (Skolverket 1998).

In this study we found that *school-arranged workplace training* had very small positive effects on the labour-market situation after having left upper-secondary school. We found that the probability of *to avoiding unemployment* was somewhat higher for those who had had workplace training compared with those who had not. These results are consistent, but the relationships are weak and only partly significant. We found somewhat stronger results for the effects of *being in the target job* nine months after having left upper-secondary school. You are 1.5 times more likely to be in the "target job" nine months after having left upper-secondary school if you have been through school-arranged workplace training than if you have not. The result is statistically significant at 95 percent level, for both boys and girls. Concerning *attitude to one's own position on the labour* market no significant results were found. The tendencies, however, are in line with those reported earlier. Students who had received school-arranged workplace training had a somewhat more positive attitude to their own opportunities on the labour market.

In the study, we also investigated the effects of *market-governed workplace training*. Many students have part-time jobs alongside school. Here, we found much stronger effects on labour-market success after having left upper-secondary school, especially concerning the probability of avoiding unemployment and attitude to one's own chances on the labour market. You are three times more likely to avoid unemployment if you have worked alongside school than if you have not, and twice as likely to look positively at your future chances on the labour market. These results are statistically significant at the 99.9 percent level. However, the impact of market-governed workplace training seems to be less on the probability of working in the target job nine months after leaving school. Even if there is a tendency for you to have a somewhat greater chance of working in the target job if you worked alongside high school, the results are only partly significant (for boys at the level of 95 percent), and the relationship is not very strong.

Some parallels can be drawn between the findings of this study and results from evaluations of labour-market policy for young people. The first parallel is that it is difficult to smooth the transition from school to work by means of "public" job provision. This is shown in our study, and evaluations of labour-market policy also show that different governmental programmes, including workplace training, often have very little positive effects with regard to young persons' successes on the labour market. For example, Larsson (2000) showed that the short-term effect of participation in labour market programmes on the probability of employment was negative rather than positive (compared with not participating in such a programme). Also, Sehlstedt and Schröder (1989) showed very small effects of different youth programmes on labour-market success. To work in temporary jobs on the regular labour market seems to be at least as effective in terms of job establishment.

However, the latter study also showed that it was important for young people to act in accordance with a "plan" on the labour market. When education, temporary jobs and government programmes complement each other within the same sector, the possibility for young people to obtain a more permanent job position was found to increase. But, to jump randomly between different activities was a less efficient strategy. Here, there is a second parallel with the findings of our study. We found that the probability of working in the "target job" increased with fully completed school-arranged workplace training. Thus, education and workplace training formed a plan that made the school-to-work transition easier, and possibly led to a permanent job.

When discussing and comparing workplace training of different kinds it is important to remember that there are different processes of selection in operation. Labour-market policy is addressed at young people who have not been able to find jobs by themselves. Market-governed workplace training alongside school is taken up by young people who have found jobs by themselves; they are probably highly motivated to work, a factor we could not control for in our study.

School-arranged workplace training should be given to all students on vocational programmes. Even though, in our study, we found that only 40 percent of students received at least 15 weeks workplace training, we found only small indications of selection effects due to social characteristics. The greatest difference was that boys born outside Sweden received workplace training to a lesser extent than boys born in Sweden. The greatest cause of failed implementation of school-arranged workplace training seemed to lie in problems within different sectors on the labour market. Accordingly, there are great differences in degree of implementation between different educational programmes at upper-secondary school level. Of course, there might also be processes of selection that we could not control for, but they are likely to be much weaker than those operating on the market. The positive effects – although small – of school-arranged workplace training should be interpreted in relation to this. That market-governed workplace training was found to have strong effects on unemployment and attitudes to one's own opportunities on the labour market is likely largely to depend on selection effects. This is probably not the case for school-arranged workplace training. All this, alongside the fact that school-arranged workplace training has an effect in terms of being in the "target job", which probably provides a good start on the labour market, makes the effect of such training small but still positive.

REFERENCES

Blomqvist B(1988): *Skolungdomars förvärvsarbete. (Working while in upper secondary school). En enkätundersökning bland gymnasieungdomar i Göteborg.* Sociologiska institutionen, Göteborgs universitet

Czaplicka M & Ekerwald H (1986): *Ungdomars konsumtion (Youth's consumtion).* Stockholm: Statens Ungdomsråd och Konsumentverket

Larsson, L (2000): *Utvärdering av ungdomsåtgärder (Evaluation of Programmes for Unemployed Youth),* Institutet för Arbetsmarknadspolitisk Utvärdering, Uppsala. Forskningsrapport 2000:3.

Meyer, P (1999): BERIKA-projektet – att utveckla undervisning och kontakterna skola-arbetsliv på Handels-och Administrationsprogrammet (Developing education and the school-work contacts in the Business Programme at upper-secondary school), Working Paper, National Institute for Working Life, Stockholm.

Sehlstedt,K & L Schröder (1989): *"Språngbräda till arbete? En utvärdering av beredskapsarbete, rekryteringsstöd och ungdomsarbete", (Springboard to Work? An Evaluation of Different Programmes for Unemployed Youth*). Ministry of Labour, Stockholm

Skolverket (1998): *Samverkan skola – arbetsliv. Arbetsplatsförlagd utbildning i gymnasieskolan. (Cooperation between school and work-life. School-arranged workplace training at upper-secondary school*). Sweden's National Agency for Education, Report 153.

Statistics Sweden (1985): *Gymnasieskolutbildade 20-åringar 1983. Elevuppföljning våren 1983 bland 20-åringar som fullföljt en gymnasieskolutbildning (Follow-up of pupils, 1983, among 20-year-olds with completed upper-secondary education*). Report nr U 41 SM 8501

Statistics Sweden (1989*): Etablering på arbetsmarknaden efter gymnasieskolan (Establishment on the Labour Market among Graduates of Upper-Secondary school*). Report nr U 55 SM 8901

Statistics Sweden (1995) *Occupations in Population and Housing Census (FoB85) According to Nordic Standard Occupational Classification (NYK) and Swedish Socio-Economic Classification (SEI),* Statistics Sweden, Örebro

Statistics Sweden (1997): *Avgångna från gymnasieskolans program. (Upper-secondary school graduates).* Report U 83 SM 9701, Statistics Sweden, Stockholm

Statistics Sweden (1998): *Inträdet på arbetsmarknaden. (Entrance to the Labour Market)* Report U83 SM 9801, Statistics Sweden, Stockholm

Table 1. Having worked besides upper secondary school (market-governed workplace training). Boys and girls. Percent

	Boys	Girls	Total
Market-governed workplace training	55	63	58
No market-governed workplace training	45	37	42
Sum	100	100	100
Number of interviews	2033	1426	3459

p< 0,001

Table 2. Having had school-arranged workplace training 15 weeks or more. Boys and girls. Percent.

	Boys	Girls	Total
Had school-arranged workplace training ≥15 weeks	33	48	40
Had school-arranged workplace training <15 weeks	67	52	60
Sum	100	100	100
Number of interviews	1922	1338	3260

p< 0,05

Table 3. Having had market-governed respectively school-arranged workplace training in relation to vocational education, the socio-economic status of the parents, ethnicity and unemployment level at the municipality. Girls

	Having had market-governed workplace training	Having had school-arranged workplace training
Vocational education		
Child recreation(n=161)	1	1
Business(n=182)	1,04	2,06**(1,31-3,23)
Handicraft(n=121)	1,40	0,97
Hotel-and restaurant(n=160)	2,51***(1,54-4,08)	1,22
Food(n=113)	1,08	1,13
Media(n=130)	1,17	0,37***(0,21-0,65)
Natural resources(n=151)	0,94	0,71
Health care(n=165)	2,37***(1,47-3,81)	4,55***(2,79-7,41)
Special(n=111)	0,83	0,12***(0,05-0,26)
The socio-economic status of the parents		
Non-skilled workers(n=235)	1	1
Skilled workers and lower-level white-collar workers(n=469)	1,30	1,12
Middle-level white-collar workers(n=276)	1,56*(1,07-2,25)	1,14
Upper-level white-collar workers(n=161)	1,12	1,47
Self-employed and farmers(n=153)	1,42	0,89
Birth country		
Sweden(n=1241)	1,20	1,27
Outside Sweden(n=53)	1	1
Unemployment rate in the municipality		
- 4,99%(n=48)	1	1
5-7,49%(n=382)	0,52	1,45
7,5 - 9,99%(n=379)	0,41*(0,20-0,87)	1,69
10,0 - 12,49%(n=399)	0,41*(0,20-0,87)	1,26
12,5 - %(n=86)	0,29**(0,13-0,66)	0,97
Nagelkerke	0,06	0,20

*** p < 0,001 ** p < 0,01 * p < 0,05

Table 4. Having had market-governed respectively school-arranged workplace training in relation to vocational education, the socio-economic status of the parents, ethnicity and unemployment level at the municipality. Boys

	Having had market-governed workplace training	Having had school-arranged workplace training
Vocational education		
Child recreation(n=149)	1	1
Construction(n=169)	1,56	1,37
Electrical(n=159)	1,06	0,20***(0,11-0,35)
Energy(n=138)	1,08	1,44
Vehicle(n=116)	0,81	0,77
Business(n=169)	0,74	1,32
Handicraft(n=17)	1,06	1,27
Hotel-and restaurant(n=156)	2,24***(1,39-3,63)	0,98
Industry(n=167)	0,90	0,44**(0,27-0,73)
Food(n=121)	0,60*(0,37-0,99)	0,87
Media(n=138)	1,06	0,20***(0,11-0,37)
Natural resources(n=144)	1,34	0,36***(0,21-0,62)
Health care(n=125)	1,50	2,83***(1,71-4,69)
Special(n=108)	0,71	0,38***(0,22-0,69)
Individual(n=24)	0,33*(0,12-0,87)	0,65
Socio-economic status of the parents		
Non-skilled workers(n=364)	1	1
Skilled workers and lower-level white-collar workers (n=665)	1,11	0,93
Middle-level white-collar workers(n=398)	1,31	0,90
Upper-level white-collar workers	1,08	0,99
Self-employed and farmers(n=248)	1,74**(1,23-2,46)	1,15
Birth country		
Sweden(n=1847)	1,08	2,33*(1,17-4,64)
Outside Sweden(n=53)	1	1
Unemployment rate in the municipality		
- 4,99%(n=78)	1	1
5-7,49%(n=473)	0,72	0,54*(0,32-0,94)
7,5 - 9,99%(n=627)	0,60*(0,36-0,99)	0,62
10,0 - 12,49%(n=582)	0,53*(0,32-0,89)	0,56*(0,33-0,96)
12,5 - %(n=140)	0,42**(0,23-0,75)	0,44*(0,23-0,84)
Nagelkerke	0,06	0,16

*** p < 0,001 ** p < 0,01 * p < 0,05

Table 5. Not been unemployed during the first 8 months after school respectively to work in the target job related to school-arranged workplace training, market-governed workplace training and vocational upper secondary education. Girls

	Not been unemployed	Work in the target job
School-arranged wt ≥ 15 weeks(n=276)	1,33*(1,03-1,71)	1,53*(1,07-2,20)
School-arranged wt < 15 weeks(n=336)	1	1
Market founded wt(n=474)	3,09***(2,41-3,96))	1,39
No market founded wt(n=138)	1	1
Vocational program		
Child recreation(n=55)	1	1
Business(n=83)	1,62*(1,03-2,56)	1,13
Handicraft(n=69)	1,57	1,05
Hotel-and restaurant(n=102)	1,25	1,54
Food(n=43)	1,15	1,08
Media(n=66)	1,68*(1,03-2,75)	0,51
Natural resource(n=54)	0,56*(0,33-0,93)	0,97
Health care(n=94)	2,05**(1,27-3,30)	5,75***(2,53-13,04)
Special(n=46)	1,57	0,28*(0,11-0,70)
Nagelkerke	0,14	0,19

*** p < 0,001 ** p < 0,01 * p < 0,05

Table 6. Not been unemployed during the first 8 months after school respectively to work in the target job related to school-arranged workplace training, market-governed workplace training and vocational upper secondary education. Boys

	Not been unemployed	Work in the target job
School arranged wt≥ 15 weeks(n=212)	1,15	1,56*(1,07-2,28)
School arranged wt< 15 weeks(n=334)	1	1
Market-governed wt(n=376)	2,71***(2,24-3,28)	1,49*(1,01-2,18)
No market-founded wt(n=170)	1	1
Vocational program		
Child recreation(n=44)	1	1
Construction(n=53)	1,70*(1,07-2,69)	1,46
Electrical(n=37)	2,35***(1,48-3,75)	1,51
Energy(n=25)	2,29**(1,40-3,76)	2,41
Vehicle(n=25)	1,62	1,83
Business(n=37)	1,32	0,77
Handicraft(n=13)	2,44	2,74
Hotel & restaurant(n=55)	1,29	2,36*(1,03-5,38)
Industry(n=47)	1,33	2,02
Food(n=34)	1,34	1,75
Media(n=47)	1,00	1,44
Natural resource(n=44)	1,50	2,55*(1,06-6,13)
Health care(n=39)	2,07**(1,26-3,39)	3,11*(1,21-7,97)
Special(n=38)	1,93*(1,16-3,22)	0,95
Individual(n=8)	1,56	0,21
Nagelkerke	0,10	0,09

*** p < 0,001 ** p < 0,01 * p < 0,05

Table 7. Not been unemployed during the first 8 months after school respectively to look positively on the future chances on the labour market in relation to school-arranged and market-governed workplace training, vocational education, socio-economic status of the parents, birth country and unemployment in the municipality. Girls

	Not been unemployed	Believes the chances are great to have a permanent position on the labour market in 4-5 years
School-arranged wt ≥ 15 weeks(n=504)	1,27	1,10
School-arranged wt < 15 weeks(n=695)	1	1
Market-governed wt(n=750)	3,28***(2,50-4-29)	2,10***(1,62-2,73)
No market-governed wt(n=449)	1	1
Vocational education		
Child recreation(n=149)	1	1
Business(n=168)	1,78*(1,09-2,91)	2,07***(1,24-3,32)
Handicraft(n=111)	1,32	4,08***(2,30-7,24)
Hotel-and restaurant(n=153)	1,22	4,71***(2,74-8,13)
Food(n=100)	1,13	1,99*(1,16-3,42)
Media(n=120)	1,40	2,68***(1,56-4,61)
Natural resources(n=135)	0,42**(0,24-0,73)	2,16**(1,31-3,56)
Health care(n=158)	2,14**(1,29-3,54)	1,58
Special(n=105)	1,98	1,62
The socio-economic status of the parents		
Non-skilled workers(n=211)	1	1
Skilled workers and lower-level white-collar workers(n=433)	1,35	1,06
Middle-level white-collar workers(n=264)	1,94***(1,29-2,91)	1,62*(1,09-2,44)
Upper-level white-collar workers(n=152)	3,71***(2,31-5,98)	2,74***(1,65-4,56)
Self-employed and farmers(n=139)	1,78**(1,11-2,86)	1,08
Birth country		
Sweden(n=1153)	1,42	1,54
Outside Sweden(n=46)	1,00	1,00

Unemployment rate in the municipality		
- 4,99%(n=43)	1,00	1,00
5-7,49%(n=364)	0,51	0,93
7,5 - 9,99%(n=347)	0,45*(0,22-0,92)	0,63
10,0 - 12,49%(n=370)	0,25***(0,12-0,51)	0,46
12,5 - %(n=75)	0,40*(0,17-0,91)	0,55
Nagelkerke	0,22	0,15

*** p < 0,001 ** p < 0,01 * p < 0,05

Table 8. Not been unemployed during the first 8 months after school respectively to look positively on the future chances on the labour market in relation to school-arranged and market-governed workplace training, vocational education, socio-economic status of the parents, birth country and unemployment in the municipality. Boys.

	Not been unemployed	Believes the chances are great to have a permanent position on the labour market in 4-5 years
School-arranged wt ≥ 15 weeks(n=628)	1,15	1,22
School-arranged wt < 15 weeks(n=1140)	1	1
Market-governed wt(n=968)	2,59***(2,11-3,12)	2,08***(1,67-2,60)
No market-governed wt(n=800)	1	1
Vocational education		
Child recreation(n=145)	1	1
Construction(n=147)	1,83(1,12-2,99)	1,05
Electrical(n=154)	2,41***(1,47-3,95)	1,46
Energy(n=127)	2,13**(1,27-3,56)	1,65
Vehicle(n=104)	1,67	2,39**(1,31-4,37)
Business(n=155)	1,14	1,26
Handicraft(n=15)	3,15	--
Hotel-and restaurant(n=143)	1,22	1,67
Industry(n=156)	1,31	1,91*(1,13-3,21)
Food(n=108)	1,33	2,50**(1,38-4,53)
Media(n=130)	0,87	1,22
Natural resources(n=135)	1,14	1,84(1,05-3,23)
Health care(n=123)	2,12**(1,26-3,56)	1,24
Special(n=105)	1,69	1,82*(1,02-3,25)
Individual(n=21)	1,32	1,12
Socio-economic status of the parents		
Non-skilled workers(n=336)	1,00	1,00
Skilled workers and lower-level white-collar workers (n=607)	1,16	1,22
Middle-level white-collar workers(n=379)	1,43*(1,05-1,96)	1,43*(1,01-2,01)
Upper-level white-collar workers(n=212)	1,42es	1,41
Self-employed and farmers(n=234)	2,35***(1,61-3,43)	1,88**(1,23-2,86)

Birth country		
Sweden(n=1717)	2,11*(1,16-3,83)	1,78
Outside Sweden(n=51)	1,00	1,00
Unemployment rate in the municipality		
- 4,99%(n=73)	1,00	1,00
5-7,49%(n=442)	0,65	0,48
7,5 - 9,99%(n=585)	0,65	0,41*(0,20-0,86)
10,0 - 12,49%(n=536)	0,68	0,30**(0,14-0,64)
12,5 - %(n=132)	0,52*(0,28-0,98)	0,25***(0,11-0,57)
Nagelkerke	0,12	0,10

*** p < 0,001 ** p < 0,01 * p < 0,05

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Prospects for mutual learning and transnational transfer of innovative practice in European vocational education and training

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Prospects for mutual learning and transnational transfer of innovative practice in European vocational education and training:

Can ideas about core problems in vocational higher education and the assessment of non-formal learning be transferred across national boundaries?

Alan Brown and Jens Bjørnåvold

1. Introduction

The intention of this paper is to contribute to wider European debates about mutual learning and the prospects for transnational transfer of innovative practice. I will do this by examining two issues. The first concerns the extent to which Dutch ideas about the use of 'core problems' in vocational education and training could usefully be applied to 'vocational' higher education in the U.K. The second draws upon lessons learned from a review of different approaches to the assessment of non-formal learning across Europe. Each of these themes will be examined in turn.

2. Context for consideration of whether Dutch ideas about the use of core problems in vocational education and training could usefully be applied in U.K. 'vocational higher education'

Debates about the purposes of education and training are currently framed around the necessity of equipping people for lifelong learning and the necessity of building a 'learning society', primarily in order to improve international competitiveness (European Commission, 1995). Interest has focused upon whether it is possible to build up the core skills or key qualifications of individuals such that they can be effective and continuing participants in a 'learning society'. One of the key debates about core skills in the United Kingdom since the late 1970s has focused upon the extent to which they needed to be contextualised: could they be separately taught or could they only be developed in particular contexts. It is noteworthy that the genesis of a national approach to core skills in the U.K. was in the idea that they could be used as a developmental tool to give structure and direction to learning in the workplace (particularly on Youth Training Schemes) (Evans *et al*, 1987). However, when used within education, primarily for 16-19 year olds, core skills became identified with "the more remedial function of equipping significant numbers of young people in each age cohort with basic skills and understanding that they have not acquired through the compulsory phases of education" (Young *et al*, 1997, p. 5).

Now the interesting point is that when looking at the parallel development of 'key qualifications' in Germany and the Netherlands, a completely different conception has been formulated. 'Key qualifications' were associated with the need to broaden and deepen vocational education and training, in relation to development of an underpinning knowledge-base and increased emphasis upon logical analytical and critical thinking. As such, 'key qualifications' raised the intellectual demands within vocational education and training, rather than being viewed in any sense as remedial.

Indeed, insofar as these related to the skills for employment, they could be seen as the education and training required to maintain an economy at a 'high skills' equilibrium (Finegold and Soskice, 1988). Finally, the German term 'Schlüsselqualifikationen' ('key qualifications') has been thought to be broadly equivalent to the English term 'core skills.' However, 'key qualifications' does not imply any primacy being accorded to a skills-based approach. Indeed, Van Zolingen (1995), in her comprehensive review, identified 'key qualifications' in terms of knowledge, insight, skills and attitudes.

So the term 'core skills' has a specific legacy within the U.K., not much affected by the change of name to 'key skills' in the late 1990s. It would be helpful if the treatment of key skills could be broadened from how it has been historically treated in the past, and the Qualifications and Curriculum Authority have recently made some moves in this direction. While it might be useful in a U.K. context conceptually to move in the direction implied by the German and Dutch understanding of 'key qualifications', a switch to the term 'key qualifications' is a non-starter, simply because the conventional English usage of 'qualifications' carries such different connotations in education. However, related recent ideas from the Netherlands may be of value and offer the prospect of learning from other systems. In particular, the attempt to use 'core problems' as a focus for the development of 'key qualifications' (Onstenk *et al*, 1990; Onstenk, 1997; Van Zolingen *et al*, 1997) may have considerable value for the development and implementation of broadly framed curricula for 'vocational' higher education in the U.K.

It is possible to broaden existing ideas about core (or key) skills, when seeking to apply them to higher education (Brown, 1997). However, a bolder approach, which is more innovative and may also prove to be more acceptable to staff in higher education, would be to shift the focus to 'core problems.' 'Core problems' are those problems and dilemmas that are central to the practice of an occupation (Onstenk *et al*, 1990), and can be conceived as a way to broaden and deepen vocational education in practice.

2.1 Core problems

The crucial lesson from a consideration of the development of key qualifications is that it is important to maintain a broad curricular focus and not get side-tracked into thinking of core (key) skills in a narrow or exclusive way. Any new approach should therefore be pedagogically driven, with proposed activities considered within an overarching conceptual and theoretical framework. Hence any approach to vocational higher education should address not only the development of the requisite skills and technical knowledge base, but also be underpinned by a commitment to continuing learning and professional development as a reflexive process, acknowledging the importance of critical reflection as a basis for learning. Such an approach to learning would also be collaborative with a particular emphasis upon the use of problem-based learning.

Now, almost by definition, it is desirable if vocational HE is closely related to the work context. One way to achieve this is to focus upon the 'core problems' of groups of practitioners. Core problems are central to the performance of roles of particular groups of practitioners. They are characterised by uncertainty, complexity, conflicting considerations and require the exercise of judgement. These problems may have organisational, occupational and technical dimensions, and their solution may require knowledge, insight, skills and attitudes related to these dimensions, as well as inter-disciplinary knowledge, the application of high-level cognitive skills and the inter-related use of communication and other core skills. Such an approach does link to the increasing use of problem-based learning within medical, legal and engineering education. From a core skills perspective this is important as this approach leads to the integrated application of these skills in a way that aligns with progressive curricular developments that are already taking place. Core skills development fits naturally within a curricular approach that utilises core problems as a key learning strategy.

A more fully developed rationale for this type of approach, which focuses upon 'core problems', would highlight that it is a reflexive collaborative learning environment making use of problem-based learning such that:

- it provides authentic contexts for learning with a focus upon real (complex) problems
- it is collaborative and dynamic, enabling learners to develop shared understandings and a sense of belonging to a dynamic community of practice, which they are helping to change and shape
- it is participative and fosters active engagement as the learners determine for themselves the issues that need to be addressed when facing core problems. They can draw upon the knowledge and skills of others in facing these issues and also create their own learning agenda to fill any gaps in their knowledge and understanding
- it supports learning which is highly relevant, because the learning is focused upon issues which are perceived as pressing by practitioners
- it gives (possibly isolated) individuals the opportunity to think through problems as part of a team
- it supports the development of creative and flexible approaches to problems
- it supports the development of contextualised critical learning
- it supports reflection upon and review of the learning process as well as of the outcomes.

Reflection upon core problems can give insight into current practice and provide ideas as to how they might tackle similar problems in future. Such reflection is critical in two respects. First, it is necessary if learners are to look beyond current practice and to help shape how such problems are tackled in future. Second, it can act as a stimulus to creativity and innovation, not least because the learners have learned the value of applying a reflective approach to the development of their own practice and expertise. Such an approach not only increases the likelihood of significant learning, it also provides a framework for subsequent continuing professional development in which it is likely that processes of new knowledge creation may be facilitated. In this sense it helps those that are learning within vocational higher education to feel they are moving towards assuming a full position within particular 'communities of practice' (Lave, 1991), and a subsequent continuing commitment to explore, reflect upon and improve their professional practice (Schön, 1983; 1987).

The explicit linking of processes of learning and reflection within vocational HE to 'core problems' at work does not, however, mean that this type of work-related learning is the sole curriculum driver. This is because it is the essence of competent professional practice that the practitioner is able to respond intelligently in situations which are sufficiently novel that the response has to be generated in situ (Elliott, 1990). The collaborative dimension too needs stressing (Lave and Wenger, 1991), as the concept of work-based learning sometimes relies heavily on individualistic processes of reflection (Winter and Maisch, 1996). Further, Eraut (1994) highlights how a focus upon workplace practice cannot necessarily be equated with a capacity to understand the ideas and concepts that inform such actions. Work-related learners should seek to ensure that significant intellectual development takes place. One way of raising the intellectual demands is to make use of problem-based learning where the focus is upon core problems of groups of practitioners (Onstenk, 1997). This also involves acknowledging the contribution theoretical concepts can make to assist individuals to understand what they are doing and why work practices are subject to change (Engeström, 1995). Another advantage of a focus upon 'core problems' is that it highlights the way professionals working in one sphere increasingly have to deal with issues that are not necessarily within a single disciplinary compass, and that they have to be able to work with colleagues and in groups with different kinds of expertise (Engeström, 1995). Young and Guile (1997) argue that increasingly professionals need to possess a connective, rather than an insular, form of specialisation, which stresses the ability to look beyond traditional professional boundaries.

The focus upon core problems can help draw attention to another aspect of developing expertise that lies in the ability of the professional to handle the complexity and inter-relatedness of issues. This has at least three dimensions. One is the form of the representation of knowledge structures into mental models (Soden, 1993) or networks (Simons, 1990), which are capable of handling increasing complexity and inter-relatedness of issues. The second dimension relates to the way an individual is able to hold and inter-relate ideas from different spheres (practice, research and theory) to get a fuller, deeper contextualised understanding of professional issues, which affect policy and practice. The third dimension then revolves around the capability to apply that contextualised understanding to particular situations and, if appropriate, to translate that understanding into action.

Core problems can be used as a facilitator of both practical and theoretical learning. That is, rather than becoming locked into current modes of practice, 'theoretical learning' is also developed through applying the concepts for analysing the problems that arise for professionals at work and for making explicit the assumptions underlying existing practice (Guile and Young, 1996). This conceptual knowledge can then be used to underpin reflection upon practice at a deeper level than just 'theorising' practice. Such conceptual knowledge can have both explanatory power and be applied to (changes in) practice. It therefore complements the development of practical learning, based upon reflection on practice. Crucially, however, the development and application of theoretical learning also facilitates a forward-looking perspective: enabling thinking about how practice might be developed in future. Indeed, a base is laid whereby the subsequent application of the processes of research, review and reflection in new contexts can lead to the creation of new forms of knowledge (Engeström, 1995). The use of core problems within vocational HE can therefore act as a springboard for the:

- exploration of and reflection upon professional practice.
- development of skills, knowledge and understanding (of critical reflection) necessary to evaluate and review professional practice.
- need to understand processes of change (as practice increasingly takes place in complex and dynamic contexts).
- ability to create new knowledge.
- development of theoretical knowledge to underpin and complement reflection upon practice.
- study of the interplay between theory and practice.
- need to be able to transfer skills, knowledge and understanding from one context to another.
- ability to handle complexity and inter-connectedness of issues (including through the formulation of mental models, schemas or networks).
- development of contextualised understandings.
- translation of understanding into action, as appropriate.
- further development of communication skills.

2.2 Discussion

Some of the unresolved issues associated with the way the core skills debate has been framed in the U.K. in the past have to be tackled if a more productive way forward is to be found. It is unfortunate that in certain contexts an emphasis upon core or key skills has been interpreted as downgrading the value of technical (subject or occupational) knowledge. This association is not present in debates in other European countries about the development of 'key qualifications'. Indeed the polarisation of arguments around whether curricula should be primarily about the development of knowledge bases or process skills is unhelpful, not least because mastery of a substantive knowledge base is itself an important process skill. The obvious solution is that core or key skills development should be integrated into and contextualised within the development of disciplinary (or vocational) bodies of skills, knowledge and understanding.

However, it should be recognised that this has often proved problematic in practice in the past (Wolf, 1991). This leads on to issues associated with questions of scale: a number of curricular innovations work well in particular contexts or with relatively small numbers, but give considerably less benefit when applied across the curriculum as a whole. This links to pragmatic considerations. Advocates of the application and integration of high-level core skills should recognise that to do this well is demanding of time and human resources. Hence they should not seek to impose this approach on all areas of the curriculum in a standard way, and they should initially concentrate their efforts in subject areas with a strong vocational orientation. The latter choice is not only because this is the area in which the benefits are greatest, but because this goes with the grain of other curricular developments in such subject areas, including interest in problem-based learning, project work, industry links and so on.

The lessons from Europe are that where 'key qualifications' are broadly defined with an emphasis upon increasing cognitive and meta-cognitive skill demands in vocational subjects, then there is no implicit reproach to more academic subjects, such as history because such subjects have traditionally concerned themselves with cognitive skills development. The whole development of the 'key qualifications' debate has been that the closer HE programmes get to vocational areas, then the more appropriate an emphasis upon occupational key qualifications becomes. In vocational HE learners can benefit from increasing exposure to core problems of the profession, which draw upon occupationally relevant knowledge, insight, skills and attitudes in an integrated way. Such a focus upon core problems can be part of a powerful learning environment, which is drawing upon ideas about the value of problem-based learning, joining communities of practice, situated learning and collaboration.

That key qualifications elsewhere in Europe have been much more broadly drawn than core skills in the U.K. has had a paradoxical effect. The breadth of key qualifications has meant that particular combinations of key qualifications are interpreted as applying to much narrower (occupational) fields of action. That is, if key qualifications comprise knowledge, insight, skills and attitudes, and have substantive cognitive, meta-cognitive, personality, strategic and socio-communicative dimensions (Van Zolingen *et al*, 1997), then the combination and application of these only make sense in particular occupational contexts. In contrast, the more narrowly defined core skills in the U.K. were initially regarded as general skills applying across a much wider variety of contexts. Subsequently, core skills have been developed in a number of different contexts, and fundamental tensions about what they are remain. Renaming core skills as key skills has not resolved this tension, and debate continues over their function, definition and appropriateness in different contexts. One resulting problem is that there is pressure to produce over-ambitious prescriptions, whereby attempts are made to apply 'key skills' in a similar way to too many contexts. Personally, I favour the logic underlying the use of 'key qualifications' elsewhere in Europe, whereby the conception is broader and the application is narrower, because their use has to be contextualised, whether in a disciplinary or vocational sense.

However, the use of 'key qualifications' is a non-starter in the U.K. and, for good or ill, the current debate is about the application of core skills to higher education. My view would therefore be that core skills should be broadly defined (following the approach of Van Zolingen *et al*, 1997). They should then be embedded within a broad, developmental approach to vocational education and training at higher levels in a way that complements, rather than undermines, other progressive developments within education, such as the use of problem-based learning, situated cognition and collaborative learning. Additionally, core skills development would need to be integrated with the development of technical knowledge, skills and understanding. Now, if this is the purpose, then this could be more effectively achieved by focusing attention upon 'core problems' rather than 'core skills'. The attractions of this are manifold but two benefits stand out. First, the most appropriate arenas of action are those areas of vocational higher education, which have already been using complementary parts of the teaching and learning 'mix'. Second, the importance of contextualisation, whereby core skills have varying relations and combinations with the technical knowledge base, means that subjects should not be judged one against another as to how well they cover a particular core skills specification.

Indeed the notion of core problems is transferable in an unthreatening way, as each disciplinary or vocational area would have to define these for themselves. Shifting attention from core skills to core problems could therefore act as a stimulus for a reflexive curricular review, with each curricular area being expected to own the process of review, as they search for an appropriate way forward. This broader, developmental and more inclusive approach to core skills in higher education would also provide much greater continuity with subsequent learning in other contexts. This approach would therefore have much clearer links with the inculcation of positive attitudes towards lifelong learning and underpin moves towards the development of a 'learning society'.

3. Context for consideration of lessons learned from a review of different approaches to the assessment of non-formal learning across Europe

Assessment has traditionally been understood as a way of judging and/or measuring the learning and performance of individuals within formal education and training settings (Little and Wolf 1996). This traditional role is currently undergoing substantial change, as a number of European countries are paying increasing attention to the development of assessment methodologies trying to measure and judge the informal or non-formal learning taking place at work, in leisure time activities and at home (Bjørnåvold 1999). The introduction of the 'Bilan de competence' in France and the development of a variety of approaches to accreditation of prior learning and prior experiential learning in the UK from the late eighties can be looked upon as forerunners of this tendency.

During the last five years, many European States have started to implement reform plans that made use of new assessment methodologies and systems (Bjørnåvold op.cit.). The tasks faced by this new generation of assessments are very different from those faced within formal education. Instead of operating within a specified institutional context where learning goals have been (more or less) pre-defined, assessments of non-formal learning have to face a variety of learning forms and outcomes. To a certain extent this is because activities previously defined as work, hobbies and family life are being redefined as 'learning'. A positive interpretation would be that this gives access to a huge reservoir of knowledge and competence only marginally and unsystematically tapped so far. A negative interpretation would be that this is an intrusion of measuring and testing into social areas until now only marginally affected by such techniques. Although certain national differences exist in the assessment of non-formal learning, there has been substantial cross-national learning, facilitated in part by the European White Paper on 'Teaching and learning' (European Commission 1995) and the Leonardo da Vinci programme.

3.1 A variety of initiatives

The issue of identification, assessment and recognition of non-formal learning is commonly treated as something exclusively linked to developments at national and public level (Klarus 1998, Bjørnåvold 1999). However, the White Paper on 'Teaching and learning' (European Commission 1995) and the Leonardo da Vinci programme (from 1995) highlight the European dimension to this issue. In addition, and sometimes supported through European programmes (Bjørnåvold and Pettersson 2000), initiatives at sector, branch and even enterprise level have added to the complexity and richness of the issue. The bulk of methodologies developed at national level during the last 10 years have been closely integrated into formal education and training systems, making it possible to earn full or partial credit through the recognition of non-formal learning.

While this is often presented as a more flexible approach to education and training, the main emphasis is still directed towards established formal qualifications, and only those parts of the non-formal learning defined as relevant within this setting are recognised.

In contrast to this are methodologies defined within a labour market or enterprise setting. In these cases the process may not be oriented towards formal qualifications, but rather seek identification of competences relevant to individual careers (within or between enterprises) or in the context of human resource management. Less constrained by what is defined as relevant by the formal education and training system, these approaches may potentially be better positioned to identify those competences that are not developed within formal education and training and thus transcend formal qualifications. In some instances a balance between education and training and the labour market is sought through the introduction of qualification standards developed in co-operation between educational authorities and representatives of employers and employees. While systems linked to formal education have been dominant so far, the number of approaches linked to the labour market or enterprises seems to be growing.

3.2 Assessments on the terms of formal education and training: integrating 'external' knowledge

In several European countries we find systems where individuals, on the basis of non-formal learning, are given the right to take ordinary tests and assessments administered within formal education and training. Assessment and testing methodologies developed within the formal system are applied to competences developed outside the formal system, at work and elsewhere. The German and the Norwegian systems illustrate this approach quite well. The "Externenprüfung" has been an element of the German dual system for decades, and approximately 5% of all candidates each year are experienced workers who exercise their right to take the final craft examination (Absclussprüfung) alongside apprentices. The "Externenprüfung" operates in accordance with the content, principles and structure of the formal pathway. So the competencies acquired outside the formal system, irrespective of how different they are from those produced in the formal system, have to be presented and restructured (by the candidate) according to the principles of the formal system.

A parallel to the German "Externenprüfung" can be found in the Norway where a candidate may take the final craft examination designed for apprentices on the basis of his or her practical work experience. Section 20 of the 1952 vocational training Act (the §-20 arrangement) stipulates that "the craft examination may be taken without any contract of apprenticeship by those who have not less than 25% longer general practice in the craft, than the period of apprenticeship." A relatively standardised assessment model is followed, operating according to the principles of *planning, implementation and evaluation*. The scheme was moderately used in the past, but during the 1990s this changed and there was dramatic growth in 1997-98. Approximately 14,000 candidates attended in each of those years, double those for a 'normal year', particularly in construction, transport, electro-mechanical industry and health and social care. The popularity of the scheme may be a reflection of the relatively low level of formal training in these areas. It also reflects the general pressure towards formalising qualifications, the most important drivers of this being wages and security of employment.

In both Germany and Norway these tests and assessments are conducted at the national level, their focus and priorities being controlled by the formal education and training system. The tests are looked upon as necessary links between the non-formal and formal systems, although questions of quality, in terms of validity and reliability, arise. Representatives of the Norwegian system admit that assessment practices may vary between different examination boards and regions, and that no formal controls have been built into the system.

3.3 Linking education and work; assessment in performance- and output-based systems of education and training

Although controversial in other respects (Wolf 1995, Eraut, 1996), the English NVQ system has been instrumental in drawing attention towards assessment of prior and non-formal learning. This follows the emphasis on output or performance: it does not matter how or where you have learned, but what you have learned. Instead of treating non-formal learning as a residual factor to be integrated into the formal system in a flexible way, as is the case in the German and Norwegian external tests, a performance based system should in principle treat all forms of learning as equal. This implies that the learning in question can be judged in a proper way, underlining the critical role of assessment tools in this approach to education and training. During the nineties, partly influenced by the NVQ system, several European countries introduced performance-based systems for vocational education and training, including the Netherlands, Ireland and Finland. During the last couple of years, Spain, Italy and Portugal have also moved in this direction. Assessment issues have become central in all these cases and we will use the Dutch case to illustrate some of the methodological developments that have taken place.

The Dutch development of systems for assessment of non-formal learning can be traced back to 1993 when the Ministry of Education set up a commission on 'Erkenning Verworven Kwalificaties' (EVK). This recommended that an infrastructure to support assessment methodologies be developed; the social acceptance of EVK (recognition of acquired qualifications) should be promoted; and methodologies be developed through pilot-studies. The development of methodologies was largely delegated to CINOP, who developed these in a limited number of sectors, including child care and construction. The approach was closely linked to, and could not have been carried through without, the new structure of vocational standards introduced in the Vocational Education and Training Act (WEB) in 1996.

The methodology involves a candidate wishing to have his or her non-formal learning recognised having to go through two stages. In the first stage, all available documentation is gathered in a portfolio (formal certificates, statements from employers, examples of work carried out and so on). This documentation is then compared with the requirements listed in the national qualification structure and a decision on partial qualification may be reached. Normally this stage will be followed by a practically oriented assessment aiming at formal certification. The methodology is centred on assessment of the planning, execution and evaluation of a practical task. In the first stage, planning, the aim is to assess the candidate's methodological competencies and his or her ability to plan the task ahead. Criterion referenced interviews are used together with observation of work preparation. The second stage focuses on the execution of the task, trying to assess execution as well as reflective skills through a combination of observation (of process and result) and a criterion-oriented interview. In the third stage, evaluation, the candidate is asked to reflect on the task performed, to identify alternative ways of doing it, and to indicate how the chosen approach could be transferred to other working situations.

The emphasis on evaluation and reflection is an interesting aspect of the Dutch approach, and that part of the assessment utilises four strands of questioning. First, and related to the preparations, why did the candidate act in a certain way and were other options available? Second, and related to the process itself, why did the candidate act as she or he did and could other options be envisaged? Third, and related to the product (or service), how can the candidate tell that it complies with requirements? Fourth, and related to the completion of the task, why did the candidate act the way she or he did and are other options possible? This illustrates the strong dialogical character of the approach; success relying not only on formal procedures and descriptions but also on the abilities and experiences of the assessors.

The CINOP approach is linked to the qualification structure introduced through the Vocational Education and Training Act (WEB), and a qualification has to be derived from an occupational profile or other similar legitimate source of information (Broekhoven and Herwijnen 1999). These profiles reflect qualification requirements in industries and branches and are divided into five levels: assistant, skilled worker, professional and middle manager or specialist. A fifth level, focusing on higher professional education, has been planned but not implemented. Each level is sub-divided into objectives outlining the required knowledge, skills and attitudes. As in the UK (Eraut 1996), problems related to the formulation of qualification requirements and standards immediately became one of the main concerns facing the Dutch approach. On the one hand standards have to be broad enough to cover the huge variety of practices existing even within one occupational area. Too broad specifications, on the other hand, run the risk of becoming irrelevant. This problem of 'criterion' and 'domain referencing' (Popham 1978, Black 1998) has faced all countries trying to develop and implement systems for the assessment and recognition of non-formal learning. Black describes the challenge in this way:

> *"the definition of a domain can only be adequately specific if it can express the boundaries, both of the content and of the ways in which this content is to be expressed, or manipulated or put to use by a candidate."(p.65)*

Black (1998) comments that the wider the domain, the more difficult becomes the assessment task. This applies to the new outcome and performance based systems for education and training where the definition of qualification domains is a critical part of the exercise. The definition of these domains, and decisions about what counts as appropriate experience, are part of a political process of deciding what counts as useful learning and appropriate assessment. This illustrates that the challenge of designing assessment methodologies at national level cannot be reduced to a (narrow) question of tools and instruments, but must include an understanding of the political-institutional framework within which these tools are supposed to function.

3.4 Career and labour market oriented assessment: the Bilan de competence

In France, the 1985 law on the 'Bilan de competence' introduced a system for the validation of occupational competences acquired outside formal education. The initiative for this may come from an enterprise or a worker. This right was strengthened through the Law of December 1991 entitling employees to educational leave (of 24 hours or 3 working days) for the Bilan. This was intended to permit the employee to review his or her occupational and personal competencies, as well their motivation and aptitudes, in order to facilitate their occupational as well as their educational development. In the same way as the approaches discussed above (2.2 and 2.3), the Bilan de competence is a national system defined and administered according to national law. But while the German and Norwegian external tests and Dutch outcome-based assessments are intrinsically linked into formal education and training, the Bilan de competence is focused on the labour market and the enterprise.

Officially, the Bilan has a clear formative role. The idea is to give feed back to the employer or employee on questions of competence in order to support further learning or career development. More than 700 organisations and institutions have been accredited as 'centres de bilan', competing over requests for assessments. The profile and professional basis of these organisations varies greatly, as does their methodological approach. The following example shows how one centre approached the process.

The centre, a private enterprise, divided the process into six phases (five if the customer is an individual). The first (enterprise) stage consists of an interview with representatives of the management in order to present the process of the Bilan and clarify the objectives of the enterprise. During this interview the centre tries to get an overview of potential career development plans and training pathways in the enterprise. In the second phase the actual mapping of individual competences starts. This process operates according to a number of criteria, such as description of own working situation, network, problems and tensions at the workplace and so on. The idea is to capture the main characteristics of the person and his or her situation at work. At the end of this interview, the candidate is given the task to work out an overview of his or her own competences, formal or non-formal. The fourth phase uses this 'homework' as a point of departure and tries to establish whether existing competences are fully utilised. The idea is to define more precisely the potential of the person and clarify where improvements could be envisaged. At the end of this phase the candidate is given the possibility to take part in a standardised test covering the most important elements of his or her competences. In the fourth and the fifth phase, the analytical part is used as a basis for guidance. The candidate is given 'homework' between these phases and the objective is to increase consciousness of his or her potential and future possibilities. The sixth phase, the actual handing of the written Bilan, finalises the process. Normally this document will contain three or four alternative but inter-linked proposals for further development.

How successful the various approaches to the Bilan de competence have been is difficult to judge. There is no institutionalised control of the results of the Bilan. Some criticisms of the approach have been made. First, there are doubts that the formative role of the Bilan is not strong enough, as the synthesis document is rarely able to point to occupational projects or prospects; and normally rather general recommendations for further training are given. Second, in spite of the efforts to analyse the competence of each candidate, formal and non-formal, many synthesis documents stick to formal elements, that can be documented through certificates and diplomas. Finally, in some cases, a blind faith in standardised and automated tests seems to exist, preventing tailored analyses appropriate for the circumstances of the individual.

These weaknesses do not alter the fact that the Bilan de competence is one of the few competence measurement systems operating on a large scale. It is also one of the few systems operating on a formative basis; the main idea being to clarify the potential of individuals. This, it is hoped, will then aid their further learning and strengthen their career possibilities. That the Bilan de competence does not aim to give formal recognition of competences according to a qualification standard makes it distinctly different from the systems presented above. The main reference points are individuals and enterprises. Other external references are not referred to, at least not formally, although there might very well be informal standards reflecting the professional background and methodological choices of the centres de bilan. Hence the summative role of the Bilan is intentionally weak, if we use summative in the sense of "summative for the accountability to the public" (Black 1998), whereas this is a central feature of traditional assessment and testing in France.

3.5 Industry driven approaches to assessment

There are indications that industrial sectors and branches are becoming more and more active in the field of identification and assessment of competences. The focus on non-formal learning is in most cases explicit, and there is a tendency to initiate work across national boarders, focusing on the sector and the industry rather than the nation. This tendency is reflected in the Leonardo da Vinci programme. In the three first years of the programme (1995-97) support was given to approximately 100 European projects working on issues of identification, assessment and recognition of competences, with the majority focused on assessment methodologies at sector or branch level. This indicates increased attention towards the role of non-formal learning at work. It might be that the diversity of approaches at this level, operating within relatively well defined occupational domains and serving somewhat narrower and more specific objectives than those faced at national level, will be more influential than the public systems, national or European. Exemplar of this industrial push are the ongoing experiments of the French Chambers of Commerce and Industry. As these experiments are based on procedures defined by the 'European Accreditation Association', a group consisting of private and semi-public accreditation bodies from the EEA countries, this gives us the possibility to reflect on assessment standards defined outside the public domain.

In "Steps towards reliable measurement and recognition of skills and competences of workers" Colardyn (1999) highlights the somewhat paradoxical character of the way existing systems for the assessment of prior and non-formal learning in France are discussed. During the nineties, all diplomas at all levels have been made accessible through recognition of prior learning outside formal education and training institutions. However, a diploma can never be achieved entirely through assessment of prior learning. At some point, which will vary from diploma to diploma, the person in question has to take formal exams. So while the system has been made more flexible, the reference point is still the formal education and training system:

> *"...recognition of learning is completely linked to the content of diplomas. Prior learning or experience can not be recognised as such; they are recognised as a part of a diploma, as part of an input process leading to formal education degrees. This means that individuals and in particular adult and experienced workers not interested in passing an additional diploma can not get their prior learning or experience recognised."* (Colardyn, op.cit., p.4)

In a project started in 1998, the objective has been to develop a methodology and a system for the assessment and recognition of what an individual can actually do in a work situation, independently of any teaching setting. It aims to capture the results of various learning processes undergone by an individual in a working environment. Furthermore:

> *"certification of competences is not concerned with assessment of performance. There could be considerable debate on that subject as it is mainly a question of how competences and performance are defined. Assessment of competences implies no judgement on how well an employee performs his actual job. This judgement is to be left to the internal functioning of the enterprise."* (Colardyn, op.cit., p.6)

A total of 15 local chambers of commerce and Industry and 24 enterprises have been involved in the experiment. An independent certification body, the 'Association for the certification of vocational competences', has been set up. The various chambers are represented in the governing board of this association. In addition, in order to include employers and employees a 'committee for certification' has been set up. The role of this committee is important as all elements concerning the assessment process, including assessment standards and proofs, have to be submitted to it. This committee, operating at national level, is envisaged to play an important role in securing quality and legitimacy of the approach. This system has been linked to a European norm (EN 45013) outlining 'standards for bodies operating certification of personnel'. Developed by the European co-operation for Accreditation (EA), this norm is supported by all the nationally recognised accreditation bodies of the EEA. Traditionally these bodies have focused on testing, inspection, and calibration of technical administrative systems, but they have gradually included certification of personnel in their activities. The objective of the EN45013 is to establish a process for specifying what will be assessed, ensuring that the assessment is transparent to all involved parties and impartial, as well as reliable and valid.

The Chambers of Commerce and Industry, when translating this norm into the French context, emphasised three major principles: the need for representation of all interested parties; the separation of training and certification; and the need for assessment and certification by a third party. The setting up of the committee for certification was an effort to meet the first principle. The second principle was to be met through a focus on results and outcomes:

> *"..not on the processes to get to the results. The assessment and certification process for certification of competences is separate from any kind of training,*

> *regardless of its length or the setting in which it occurs."* (Colardyn, op.cit., p.7)

The third principle, assessment by a third party, is a crucial part of the approach, linking into the quality, reliability and validity of the assessment process itself. An assessment of an employee can not be conducted by his direct supervisor but has to be done by an expert in the particular domain who has been trained and certified as an assessor. The work of the assessor will be checked by a 'verificateur' responsible for monitoring the work of a group of assessors. This check and control system also has a third and fourth level. At national level the accreditation office will be involved and will serve as an appeals office, and at international level the activities at national level will be monitored by a team following ISO procedures.

The institutional set up, though crucial for the legitimacy of the exercise, can not fully solve the fundamental question of assessment standards or reference points. The standards to be developed and issued by the committee for certification will be based on the following elements: characterisation of the competences and their elements; a non-exhaustive list of examples of proofs extracted from the work situation in enterprises; a duration of validity; reference to the job-descriptions created by the National Agency for Employment; and reference to the diplomas accessible through the assessment of prior learning. Standards are submitted for approval to the Committee for Certification and then published. Updates are supposed to take place at regular intervals.

For the time being, the main experimentation and concern is directed towards how to collect *individual competence proofs*. Standards in a total of 15 different domains were covered during 1998 and 1999. For each assessment standard, 9 enterprises have been involved, working on the competence standards and the proofs. Three main types of proofs are envisaged:

- Proofs extracted from the work situation of each enterprise: these form the core of the proof. Certification of competences must reflect activities in the work situation, there is no question of inferring external elements. It is stated that proofs have to exist prior to the setting up of the portfolio.
- Complementary information: mainly testimonies from supervisors and colleagues, although sometimes, if appropriate, tests can also be used.
- Additional information: for example observation or interviews to verify the authenticity of the proofs.

The emphasis on proofs has led to a 'bottom up approach' to the development of standards. The enterprises involved in the experiment have brought forward lists of proofs stemming from their own contexts. The final (but non-exhaustive) list of examples presented in every standard thus reflects this variety. Although collected in single enterprises, the proofs tend to appear again and again, in spite of contextual differences:

> *"the nature of the proofs extracted from the work situation contribute to support the idea that certified competences are transferable from one work situation to another."* (Colardyn, op.cit., p.11)

Perhaps the most interesting aspect of this industry driven approach to assessment is the way that the 'bottom up approach' to the development of standards could contribute to the development of a community of judgement about assessment that is driven from an understanding of how assessment operates in practice. This would seem to acknowledge that the development of a working consensus about assessment processes is itself a process that takes time, resources and commitment to achieve.

3.6 Enterprise methodologies for the assessment of competence

Most managers would not immediately look upon identification, assessment and/or recognition of non-formal learning as directly relevant to their day to day activities. However, while the vocabulary might be unknown, efforts to identify and measure employees' skills are common. In the setting of human resource management tools for competence measurement in some form or another are of crucial importance. Without an overview of the competences held by employees in an enterprise, systematic improvement becomes impossible. The instruments used in order to achieve this information range from traditional personnel files, containing information on formal education and former work experience, to sophisticated techniques for testing and self-assessment. The exchange of experience between those with expertise in human resource management and those with expertise in assessment has not been systematically developed. However, Mercedes Benz (now: Daimler Chrysler) provided an example of how a productive inter-relationship between the different approaches can be achieved.

In 1993, MB announced a plan to build a new car manufacturing plant in Alabama, USA. Alabama is an area characterised by weak industrial traditions, with few people skilled in car building. Recruiting workers mainly from the local area, MB faced a basic challenge: how to select and recruit good workers in a situation where their competences had been developed in totally different contexts. Traditional information on knowledge and competences, diplomas and certificates, were of limited value in this situation. A total of 60,000 people applied for 900 available jobs. The questions were: how to measure what people know; and how to validate these competencies against the requirements of production. It was acknowledged that Mercedes Benz did not have the right instruments to do this job. A co-operation with the University of Alabama and various private assessment organisations was initiated and a complicated 12 level process was designed and developed from scratch. A combination of interviews, tests, and observation of behaviour in a work environment was introduced. After initial selection, applicants attended a pre-employment training where 'the ability to learn' was addressed and assessed. The basic objective, according to Mercedes Benz, was to find 'generalists able to learn', not specialists in the traditional, formal sense. The assessment task was thus focused on attitudes, abilities to communicate, approaches to problems, and so on, rather than upon predefined, undisputed areas of knowledge.

The MB approach in Alabama was based on economic considerations, as formally non-skilled generalists are cheaper than formally skilled specialists, and upon the need to develop the necessary manufacturing competencies from zero to an operational level in the time-span of two to three years. It was also clear, due to economic considerations, that very few Germans would be transferred to Alabama, thus making it necessary to train managers and co-ordinators at all levels and in all functions. After the initial recruitment process, assessment methodologies were integrated into the normal management function, focusing initially on the selection and training of managers. It is interesting to note that the assessment approach used by Mercedes Benz in Alabama was more complex than the public assessment methodologies discussed so far. This meant that the amount of time and money used for assessment far exceeded what is usually envisaged for public systems. The case also illustrates that there is a limit to the degree of simplification and standardisation that should be introduced into assessment methodologies. The Mercedes Benz approach in Alabama put a strong focus on learning abilities and learning context. These elements can not be captured through standardised and automated tests alone, but require tailored solutions able to reflect the uniqueness of individual learning experiences and competences.

3.7 Task and/or technology specific approaches to assessment

As already indicated in our discussions of initiatives at European level, a number of methodologies have been developed in order to assess competences linked to specific tasks or technologies. The catalogue of Leonardo da Vinci projects provides an interesting list of efforts in this direction. Some of the topics and technologies covered are laser technology, welding, environmental engineering, thermal spraying, cleaning, waste water handling and security services. These areas are either examples of technologies developing too fast to be adequately covered by traditional schooling (laser technologies) or to a great extent falling outside the domain of formal schooling (cleaning). While working within a relatively limited and clearly defined domain, many of these approaches work across national boarders. Working with specific tasks and technologies, these projects seem to be much more inclined to see the limitations of purely national solutions.

One important question, however, is whether the development of a multitude of isolated assessment methodologies, linked to narrow tasks and technologies, provide a better solution than the development of general methodologies at national (or even European level)? The ability to define the boundaries of the domain to be tested has been presented (Black, 1998) as a prerequisite for reliable and valid testing. Can task or technology specific approaches, clearly having followed this principle, give rise to a 'bottom up' approach to the identification, assessment and recognition of non-formal learning. The increasing activity at sector and enterprise level certainly supports this kind of development; pushing competence measurements forward, but to a great extent outside the control of public authorities, and in particular outside the control of formal education and training. It might be argued that wider national or European approaches only operate on the periphery of the huge reservoir of competences developed through non-formal learning. At these levels one criticism is that projects are addressing areas that can be easily measured in a fairly objective way. Such a criticism implies that crucial competences, for example related to communication, co-operation and problem solving, will remain much harder to tackle.

3.8 Discussion on the identification, assessment and recognition of non-formal learning

The discussion so far illustrates that across Europe there is a concentrated but highly diversified push towards the introduction of methodologies and systems for identification, assessment and recognition of non-formal learning. Although in many cases still at an experimental stage, there has been a wave of activity at European, national, sectoral and enterprise level to move in this direction. There are two competing explanations. The first is that it is being driven by the need for 'institutional re-engineering', as part of the link between measuring competences and redesigning learning systems. The second is that a situation has developed where solutions are seeking problems: where methodologies and systems are being developed in an institutional vacuum, not responding to actual needs?

The first explanation relates to the idea that a substantial reorientation of vocationally oriented education and training is currently taking place, often initiated at the public level with a move from input-oriented to output-oriented systems. In countries like the UK, Finland and the Netherlands it is emphasised that what matters are the competencies, not how you acquired them. But alternative learning is not necessarily good learning and hence has to be identified and assessed in the same way as formal learning. The link between these education and training reforms, intended to be more open, flexible and inclusive, and the development of methodologies and systems for assessment is thus obvious and direct.

This re-engineering can also be linked to the growing emphasis on life-long learning. To establish a system for learning throughout life implies a stronger link between various forms of learning in different domains at different stages of life. While the formal system is still very much focused on initial education and training, a lifelong learning system has to face the challenge of linking a variety of formal as well as non-formal learning areas. This is necessary to meet the individual need for continuous and varied renewal of knowledge and the enterprise's need for a broad array of knowledge and competencies, a sort of knowledge reservoir to face the unexpected. Also in this context, the question of identification, assessment and recognition of competences is crucial. Competences have to be made visible if they are to be fully integrated into such a broader strategy for knowledge reproduction and renewal.

More or less explicitly, these two challenges are emphasised in all the countries studied. In some countries, methodologies for the identification, assessment and recognition of non-formal learning are looked upon as necessary tools to open up these new pathways. We leave it as an open question whether the existing systems are able to fill this function.

The second explanation is based around the idea that the area of identification, assessment and recognition of non-formal learning is characterised by highly articulate suppliers of solutions (at European, national and sectoral level) and very quiet users (individuals and most enterprises). The development of measurement and assessment methodologies can only in a few cases be described as driven by demand or as a push from the bottom up. If we study the last half of the 1990s, when this tendency gained speed and strength, the existence of programmes like Adapt and the Leonardo da Vinci at European and sectoral level has contributed to the setting and changing of the assessment agenda. The availability of additional money, linked to a limited set of specific priorities, inspired a high number of institutions to involve themselves in the development of assessment instruments and tools. Although the results from these projects may be of varying quality, the long term impact on the agenda of the organisations and institutions involved should not be underestimated. The coming period will show whether this supply driven movement will find users, for example at sector and enterprise level, appreciating the efforts already made.

At national level we can observe how clusters of countries have learned certain lessons from each other and how the existence of a methodological instrument in one country may attract attention from neighbours. For example, the Irish approach to accreditation of prior learning is very closely related to UK efforts in this area, without apparently acknowledging the considerable problems that occurred in practice (Wolf 1995). This is perhaps due to a tendency for policy-makers in one country to focus upon the policy intentions and instruments in another country rather than upon how they operate in practice. Hence policy-makers looking at the English NVQ system often seemed unaware of "the impossibility of delivering NVQs as they are meant to be delivered, because of time, space, money and the realities of individuals' record-keeping capacities" (Wolf, 1995, p.117). On the other hand, the Finnish system for competence based assessment has, during a period of 3-4 years, attracted considerable attention in the other Nordic countries. To a certain extent it is possible to follow how policy formulations travel from the documents of one country to the documents of another (in this case from Finland to Norway and Denmark and finally to Sweden). The fact that these policy documents have led to further experimentation and reform makes the phenomena even more important.

Mutual learning is generally positive. Although a substantial transfer or copying of methodologies and approaches has taken place, the degree of local adaptation and change is also considerable. The dominating top down character of the initiatives is, however, striking; and it is an open question of whether the proposed solutions will find proper problems, users and customers. In this light it is interesting that the very limited success of NVQs in England meant that the national authority (first NCVQ and then QCA) put extra effort into selling the system to other countries as a means of raising revenue. Indeed it is ironic that the feature that makes the system attractive to others, extremely demanding and rigid requirements that look as though they deliver high national standards, is the very element that increases the likelihood that "factors which are extraneous to assessment will in fact preclude effective and high-quality assessment from taking place" (Wolf, 1995, p.125).

From the above it could be argued that the emphasis on assessing non-formal learning is supply-driven, but the current emphasis seems to rest on two further factors. First, there is the desire to broaden the knowledge basis of societies, and to link theory and practice in a more efficient way. Second, there is the desire to re-design and re-engineer education and training systems in the direction of outcome based and life long learning oriented systems. These two factors can be linked by the question: are current methodological approaches to the assessment of non-formal learning able to respond to the expectations with which they are confronted?

Assessments within formal education and training have traditionally fulfilled a number of different and partly conflicting functions. Educational and occupational *selection* has traditionally been very important. Certificates and diplomas can be used as signals of the successful completion of a certain educational pathway, declaring an individual suited for a certain task or position. Those lacking the appropriate certificate, irrespective of personal qualities, are by definition regarded as unsuitable. This *summative* role of formal education and training thus appears particularly antithetical to non-formal learning. This need not necessarily be the case, however, if the formal education and training seeks to strengthen links between formal and non-formal learning prior to the summative assessment being made. Examples of this can be seen in the recognition and formal credit being given to work-based learning and the growth of practice-based degrees, where learning from experience through processes of critical reflection is the primary vehicle for learning and assessment. Such approaches are becoming widespread in the UK for example, and, although they make extensive use of non-formal learning, they still result in the award of traditional graduate or post-graduate awards. (Incidentally such approaches would fit very well with the argument in the first part of this paper that a focus upon core problems might be productive in vocational higher education).

The summative assessments themselves need not necessarily involve traditional examinations either. They could utilise some of the assessment methodologies highlighted in this paper, or others such as synoptic assessment, as a means of reviewing the accumulated understanding of a domain as a whole, including the ability to apply skills, knowledge and understanding in a range of contexts. From this it is clear that new assessment methodologies drawing upon non-formal learning can be used to facilitate and recognise a broader knowledge base within society. They do this most effectively, however, when they are used within a holistic approach to learning and assessment, rather than setting themselves apart from more formal education and training.

A second role of assessment within formal education and training is the promotion of learning through systematic diagnosis and feedback. This *formative* role implies a strong interrelation between teaching and learning processes and the actual assessment. Formative assessment within formal education and training has usually, though not exclusively, focused upon progress in learning that will eventually be summatively assessed. The assessment methodologies outlined in this paper, however, have drawn attention to the way it is possible to use formative assessment as a means to build confidence, commitment and develop key qualifications such that they have an direct effect upon the performance of individuals as learners in other contexts. This again draws attention to the need for a holistic approach to learning and personal development, which makes use of a range of approaches to learning and assessment.

This is important too in that it has implications for the desire to redesign education and training systems, because there is a paradox in that if you are interested in education and training delivering a wider range of outcomes then you need to give greater thought to the *relationship* between learning processes and outcomes. The English NVQ system has vainly struggled for the last decade to come to terms with the fundamental flaw in its initial design that it was sufficient to pay almost exclusive attention to the outcomes of learning and ignore the processes of learning. So the lesson here is that the new assessment methodologies can contribute to the redesign of education and training so that they are oriented towards a wider range of outcomes, including recognising the need for individuals to feel that they are willing to continue learning in a variety of contexts throughout their lives. However, it should be acknowledged that these methods are only one part of the required learning and assessment mix, and they should not be expected to carry the full weight of such fundamental change on their own.

The final lesson we wish to draw from our review is that the extent to which current methodological approaches to non-formal learning are able to respond to rising expectations about what they may do depends partly upon how inclusive these approaches are. The bottom up approaches outlined in this paper specifically tried to involve people at all levels in thinking about issues fundamental to learning and assessment. This is not to downplay the possible role for top down developments, but rather to acknowledge that such systems will need to pay particular attention to building a community of judgement through the networking and training of assessors. The rationale for this is that these people should have an input in how the assessment approach will work in practice, rather than just being expected to implement a system designed largely in isolation from those with practical experience of assessment. Any review of the role of assessment should therefore ask whether it strengthens the links between formal and non-formal learning, and whether it does this in an inclusive way. In order to move forward it is important that the issues raised here are widely debated and we hope that this paper is a contribution to that debate.

References

Brown, A. (1997) 'The development of key skills across contexts and over time', **Capability**, 3, 2, 16-20.

Elliot, J. (1990) A model of professionalism and its implications for teacher education, British Educational Research Association Annual Conference, Roehampton. In A.Brown (ed) Promoting vocational education and training: European perspectives, Tampere: University of Tampere Press.

Engeström, Y. (1995) **Training for Change**, London: ILO.

Eraut, M. (1994) **Developing professional knowledge and competence**, London: Falmer.

European Commission (1995) **Teaching and Learning: towards the learning society**, Brussels: European Commission.

Evans, K., Brown, A. and Oates, T. (1987). **Developing work-based learning: an evaluation of the YTS Core Skills Project**, Sheffield: Employment Department.

Finegold, D. and Soskice, D. (1988) The failure of training in Britain: analysis and prescription, **Oxford Review of Economic Policy**, 4, 21-53.

Guile, D., and Young M. (1996) Connecting work, learning and higher level qualifications: a new role for theory and practice in Masters degrees, unpublished paper, Post-16 Centre, Institute of Education, London: University of London.

Lave, J. (1991) Situated learning in communities of practice. In L.Resnick, J. Levine and S.Behrend (eds) **Perspectives on socially shared cognition**, Washington DC: American Psychological Association.

Lave, J. and Wenger, E. (1991) **Situated learning: legitimate peripheral participation**, Cambridge: Cambridge University Press.

Ostenk, J. (1997) 'Kernproblemen, ICT en de innovatie van het beroepsonderwijs' ['Core problems, information and communication technologies and innovation in vocational education and training'], Amsterdam: SCO Kohnstamn Institut.

Onstenk, J. *et al* (1990) 'Leerprocessen in stages' ['Learning processes during practical training'], Amsterdam: SCO Kohnstamm Institut.

Schön, D. (1983) **The reflective practitioner**, New York: Basic Books.

Schön, D. (1987) **Educating the reflective practitioner**, San Francisco: Jossey-Bass.

Simons, R-J. (1990) **Transfer-ability**, Nijmegen: Quick Print.

Soden, R. (1993) **Teaching thinking skills in vocational education**, Sheffield: Department of Employment.

Winter, R. and M.Maisch (1996) **Professional competence and higher education: the ASSETT programme**, London: Falmer.

Wolf, A. (1991) Assessing core skills: wisdom or wild goose chase, **Cambridge Journal of Education**, 21, 2, 189-201.

Wolf, A. (1995), **Competence-based assessment**, Buckingham: Open University Press.

Young, M. and Guile, D. (1997) New possibilities for the professionalisation of UK VET professionals, Post-16 Centre, Institute of Education, London: University of London.

Young, M., Hayton, A. and Leney, T. (1997). Report on the ASDAN Youth Award Scheme, London : Post-16 Centre, Institute for Education, London: University of London.

Van Zolingen, S. (1995). 'Gevraagd: sleutelkwalificaties : Een studie van sleutekwalificaties voor het middelbaar beroepsonderwijs'. ['Wanted: key qualifications : a study of key qualifications for upper secondary vocational education and training'], Nijmegen: UDN.

Van Zolingen, S., Blokhuis, F., Streumer, C. and Nijhof, W. (1997). 'Towards broad initial vocational education and training: a method for the formulation of key qualifications and core problems', Paper presented at CEDEFOP conference on Core Skills, June 1997, Amsterdam.

SCO-KOHNSTAMM INSTITUUT

POWERFUL LEARNING ENVIRONMENTS IN VOCATIONAL EDUCATION:
a conceptual model

Presentation ECER 2000
University of Edinburgh

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Powerful learning environments in vocational education: a conceptual model

ABSTRACT

The research project focused on the teaching and learning practise within three and four-year school-based vocational courses at senior secondary level (SEDOC-level 4) in the Netherlands. The central research problem was to what extent and in which way innovations of the teaching and learning processes within these courses can be seen as specifications of the model of `powerful learning environments' (De Corte, 1990). To investigate the teaching and learning processes in depth seven case studies were executed. A case was defined as a course that had implemented far-reaching innovations within the teaching and learning process. In reference to the results of (analysing) the case studies a conceptual model of `powerful learning environments' was further specified. The presentation at the ECER will focus on the development of this model in reference to the research results, and on specifications with respect to vocational education and training.

Introduction

The research project focused on the teaching and learning practise within three and four-year school-based vocational courses at senior secondary level (SEDOC-level 4) in the Netherlands. These courses qualify youngsters of 16-20 years old primarily for employment at middle-management level in four occupational sectors: technology, agriculture, health care & social services and commerce. In 1998 some 235.000 youngsters were enrolled in these vocational training pathways. The courses also give access to higher education (HBO at SEDOC-level 5), which some 30% of the 53.000 graduates in 1998 actually did.

Research problem and theoretical framework

The central research problem was to what extent and in which way innovations of the teaching and learning processes within these courses can be seen as specifications of the model of `powerful learning environments'. This last concept refers to De Corte (1990). De Corte based his concept of `powerful learning environments' on the conceptual framework of `cognitive apprenticeship', which was developed by Collins, Brown & Newman (1989). Various researchers have discussed these concepts and also used them in their research within the area of vocational education and training. In reference to these discussions and adjustments and also in reference to the original concepts, we developed a provisional scheme of `powerful learning environments'. This provisional scheme served as a directive framework for determining and executing the various research activities and analysing the gathered data. The scheme comprises four main categories, i.e. `contents', `didactics', teacher-activities or teaching methods, student-activities or processing activities. Each main category consists of a set of aspects based on previous research and theoretical elaboration.

Research design

To investigate the teaching and learning processes in depth seven case studies were executed. A case was defined as a course that had implemented far-reaching innovations within the teaching and learning process. The case study approach was also chosen because it is a method to make it possible to gather multiple sources of evidence that could reinforce each other. These multiple sources consisted of observations at school and during project work, interviews with co-ordinators, teachers and students; analysing of teaching materials and a survey addressed to a selection of teachers and students.
The developed provisional scheme of 'powerful learning environments' was used to analyse the gathered data, i.e. the various sources. Two questions were posed on each source of data. The first question was to what extent the data could be seen as an example of one of the aspects of the working

scheme. The second question was to what extent the data were an adjustment or addition to the aspects of the provisional scheme.

Results and conclusions

The innovative courses we studied referred to various modes of teaching and learning. A common feature is the implementation of project work and problem based structuring of contents. In several cases students were stimulated to organise and reflect upon their learning process and alternate individual learning with co-operative learning. In other cases information and communication technology plays an important role within teaching and learning processes.
In reference to the results of (analysing) the case studies the provisional scheme of 'powerful learning environments' was transferred into an adapted conceptual model. A summarised version is given below. The presentation at the ECER will focus on the development of this model in reference to the research results, and on specifications with respect to vocational education and training.

powerful learning environments within senior secondary vocational education

contents

- domain knowledge; heuristic strategies; control strategies; learning strategies
- functional and realistic (referring to (occupational) practise)
- integrative (referring tot complex problems which integrate domain knowledge and procedural knowledge)

didactics (methods and modes of training)

- concentric structuring of contents (with respect to broad-specific and whole-partial competencies)
- structuring of teaching methods from prescribed in the beginning and supportive at the end of the course)
- rich and multiple learning sources and materials
- co-operative learning

teaching or supporting activities (by teachers, ict, experts in the field, other students)

- modelling
- scaffolding
- coaching
- evaluating

processing activities (by students)

- constructive learning (active and explorative learning)
- reflective learning

Searching for the meanings of learning at work: cases of Product Planners (First Draft)

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1) Introduction:

This working paper examines learning at work as it is experienced among product planners. The paper focuses on three questions of 1) what are product planners' conceptions of their work and learning experiences in different situations in a work context, 2) why are the learning processes and the learning situations examined through ethnographic methods and 3) what are some preliminary remarks of this ethnographic analysis. The study presented here is the first part of a larger research project which aims to describe and understand the phenomenon and the processes of workplace learning as it is perceived by planners themselves. Further, it will describe the meanings that are given to learning. Individual and collective meanings will be studied. An analysis of learning situations is based on observations and interviews, and an analysis of the meanings that are given to these learning experiences on every day work in interviews. The specific aim of the first part of the research project is to examine the learning situations and processes described by planners. The preliminary results presented in this working paper are grounded on first 8 interviews conducted in one high-tech enterprise in central Finland.

In recent years the fundamental importance of the workplace as a site for learning has been reasserted, and it has long been quite evident that most of the learning in the workplaces is informal (see Benson, 1997; Watkins & Marsick, 1992). Learning is seen as a natural part of every day work and the work itself is seen as a rich source of learning (McGill & Slocum, 1994; Darmon and co., 1998). Studies in the US (Darrah, 1995) and in Japan (Koike & Inoki, 1990) have focussed on examinations of the processes whereby individuals acquire skills in the course of their every day work activities. On the basis of these experiences, high levels of skill formation can only be achieved through work-based learning, especially through learning on-the-job.

The ways of workplace learning have been examined by a few larger research efforts. These studies, conducted by interviews, have tried to answer to the questions such as, what is being learnt at work, how is learning taking place and what kind of factors affect the amount and direction of learning in the workplace (Eraut and co., 1998; Gerber and co., 1995; Gerber, 1998). The findings from these studies suggest that much learning at work derive its purpose and direction from the goals of the work itself. It arouses naturally out of demands and challenges of work and out of social interactions in the workplace with colleagues, clients and customers. Learning at work sometimes involves undertaking some formal training, but almost always requires learning from experience and from other people at work (see also Boud & Miller, 1996).

In more detail, learning at work takes place by making mistakes and learning not to repeat the mistake, through self-education on and off the job, through participating one's personal values, by applying theory and practising skills, through solving problems, through interacting with others, through open lateral planning, by being an advocate for colleagues, through offering leadership to others, through formal training and through practising quality assurance (Gerber, 1998).

One problem in the discussion concerning the study of learning at work is that it is a very complex phenomenon, which is so far lacking systematic, sensibly conceptualised and comprehensive theorisation. It suffers from three kinds of problems: 1) there has been a diversity of work in various parallel but non-overlapping fields of study and practice, 2) there has been a proliferation of different terminology to refer the same basic concepts and 3) the term itself can mean very different things depending on the ideological and organisational perspective of the writer or speaker (Candy & Mattehews, 1998). In sum, workplace learning has been studied from various points of views:

1. The workplace as a site for formally accredited learning
2. The workplace as a site for complex technical interactions and problem solving
3. The workplace as a site for sharing and creating knowledge
4. The workplace as a part of knowledge society
5. The workplace as an organic entity, capable of learning and adaptation in its own right (Candy & Matthews, 1998).

Accordingly, there seems to be a strong need for research in the area of nature of learning in the workplace from perspectives as how learning occurs, the various ways in which it can be organised and controlled, how it can be made to more effectively meet the needs of and benefit more people, the workplace as environment for learning (Boud and co., 1998; Lähteenmäki and co., 1999). Especially there is a need to examine learning at work as it is seen by the actors themselves (see e.g. Garrick, 1999). Examining learning from the workers' point of view requires more interpretative approaches, process oriented methods, detailed work descriptions in natural settings, such as case studies and workplace ethnographies (Eraut, 1998; Henriksson, 1999; Karakowsky & McBey, 1999; Sandberg, 1994; Torraco, 1999). Also discursive approaches for qualitative and narrative forms of research have to be developed further for use in specific contexts (Bouwen, 1998).

In sum, on the basis of recent studies the interest should be now focussed on the working activities and practices as such and examine these practises as learning. The point of departure should be the meanings given to the activity and practise by the workers themselves and interpret learning in different organisational contexts through these meanings. Also, the interaction of workplaces during which the meaning-making and learning processes takes place, should be examined.

2) Conceptual starting points: Learning at work as collective action and negotiation and construction of meanings

The starting point of this research is to view different practices and situations of work through which learning is assumed to take place. By acting together, solving problems, making and negotiating meanings is learning in it. Taking the social constructionist perspective as the point of departure, learning is making the world in which we are living and making meanings and participating in every day social action, meaningfully. Learning is ubiquitous in ongoing activity, though often unrecognised as such. Lave (1993) has come to the conclusion that there is no such thing as learning sui generis, but only changing participation in the culturally designed setting of everyday life. Or, to put it the other way around, participation in everyday life may be thought as a process of changing understanding in practice, that is, as learning (see also Lave & Wenger, 1991). There is no need to isolate knowledge from practice; instead there is a need to develop a view of learning as social construction, putting knowledge back into the contexts in which it has meaning. Workplace learning is best understood, then, in terms of communities being formed or joined and personal identities being changed. The central issue in learning at work is becoming a practitioner not learning about practice (Brown & Duguid, 1991).

Currently situated and negotiated nature of workplace learning is widely accepted (Lave & Wenger, 1991; Wenger, 1998) and the distinction between learning and working has significantly eroded in workplaces. Skilled performance in the work would not develop if workers had not benefit of learning in the context of their work. Competence cannot be separated from the context in which the performance is expected to take place (Brown & Duguid, 1991; Orr, 1996; Sandberg, 2000; Torraco, 1999). Accordingly, for instance in an organisational culture, the work itself and the role of colleagues may determine what is learnt and is possible to learn at work (Karakowsky & McBey, 1999). Further, Garrick (1999), in his study of HR developers' informal learning, has noticed that local and context-bounded power relationships form the informal learning of workplaces. Learning seemed to be constructed discursively, through work-based communication and symbolic patterns of behaviour. It was subjected to the discourses circulating about the primary purpose of the job: the actual work. The notion of situated learning and the critical role of emotion in it labelled informal learning according to his study.

Research on learning and the development of expertise has followed two major pathways, which Sfard (1998) has named as an acquisition metaphor and a participation metaphor. The former analyses learning as knowledge acquisition while the latter emphasises that learning is a process of becoming a member of a certain community and becoming able to communicate and participate within this community. In the present study learning is approached more as a process of social participation than an acquisition of knowledge not to ignore the latter however. Etienne Wenger (1998) states that unofficial communities of practice reach expertise and competence. These communities of practice are usually informal and pervasive and this is the reason why they rarely come into explicit focus, but for the same reasons they are quite familiar (like family, group of workers etc.). The community of practice is described by three dimensions of relation by which practice is a source of coherence of the community: 1) a joint enterprise or a project of joint responsibility, 2) mutual engagement, that is, doing things together and 3) a shared repertoire. Over time, the joint pursuit of an enterprise creates resources for negotiating meaning. The repertoire of a community of practice includes routines, words, tools, and ways of doing things, stories, genres, actions or concepts that community has produced or adopted in the course of its existence, and which has become part of its practice. Communities of practice are prescribed by the duality of participation (membership and interacting) and reification (instruments, documents, forms and points of focus) which determine, on the other hand, the interaction of the world and the experience of the action in the world and, on the other hand, continuous negotiations of meanings produced by the culture. Wenger also considers learning as a process of changing identity. Construction of the identity is a process in which we negotiate together meanings of the experiences from participation of communities of practice. Thus, our identity is continuously determined in relation to our community.

Consequently, the concept of meaning should be taken under closer look. Meanings in this study are understood as experiences, which are being interpreted all the time by us. Meanings are not properties of people, instead people can give meanings to their experience. As Jarvis (1992) puts it:

> "Learning is about the continuing process of making sense of every day experience - and experience happens at the intersection of conscious human life with time, space, society and relationship. Learning is therefore, a process of giving meaning to, or seeking to understand, life experience."

The processes of meaning making include the following generalisations from different writers' by Merriam & Heuer (1996): 1) Experience in and of itself does not have meaning. The person must assign meaning to the experience. 2) Individuals bring to their experiences an accumulation of past experience and knowledge; therefore, individuals' meaning of the same event can be dramatically different. 3) Meanings are socially constructed and context-dependent and 4) our need to make meaning of our experience is fundamentally human. Wenger (1998) has also seen meanings as a part of every day life. Meanings are not as it sits lock up in dictionaries. It is neither a question of relation between a sign and a reference. Neither is it on meaning as a grand question – on the meaning of life as a philosophical issue. Instead: "Practice is a meaning as an experience of every day life. It is a way of talking about our changing ability – individually or collectively – to experience our life and a world as meaningful. In this sense, living is a constant process of negotiation of meaning."

3) Research task and methodology

The purpose of the present study is to examine product planners' learning in the work context. In addition, this study describes various meanings, which are given to learning experiences and different individual and collective learning situations. Further, the role of information technology and especially its meaning from the learning's point of view has risen as one interesting theme and is further explored. The engineers of this field are studied because of growing demands of the information technology used as a tool at the planning work. Information technology seems to determine more and more planners' work and that is why also the meanings given to the learning of use of information technology will be examined.

The following research questions will be studied in the present study:

1. What kind of experience do employees interpret as learning?
2. What kind of meanings do employees give their action and learning individually and together?
3. What kind of meanings do employees give to the use of information technology at work and in learning?

This working paper concentrates on the first research question. The sub questions are as follows:

- What kind of conceptions of work and learning do employees present?
- What kind of difficult and challenging situations can be found at work, how is learning taking place in these situations?
- What kind of themes does emerge from the product planners' interviews about learning in the workplace?

The empirical data is based on observations and interviews with product planners (n = 18-20) from two high tech enterprises in central Finland. The observations and interviews (n = 8) considered in this presentation took place during May and June in 2000. The data from the other enterprise will be collected in October and November 2000.

All the interviewees were men and two of them were more closely observed in their every day work at one of the enterprises. The age of participants ranged from late 20s to late 50s. Six of them had an engineer education and two of them had a technician background, all of working under the job title of a development engineer. Three of the participants had more than 20 years of work experience at the enterprise in which they were working currently, and at least 10 years of planning experience. Two of the interviewed were superiors (team leaders) having at least 7 years of experience in planning. The rest of the participants had 1-3 years of planning experience and only a short work experience at this enterprise. This kind of "novice-expert" –setting, which was not intentionally created at the beginning of the study, offers a possibility to compare planners' experiences of learning on later stages of the study.

The observations took place at the room of two younger planners and lasted for 5 weeks. Through ethnographic observations it was possible for me to make notions and notes of designers' work and different working situations. The primary aim of observations was to describe what happens in setting and how people involved saw their actions and those of others, and the contexts in which the action took place (see Hammersley & Atkinson, 1995). By listening and walking around I created, as a researcher, an appreciation for the inquiry and a good relationship with the workers. I tried to create a good atmosphere between me and the planners behaving like any worker in the community from the beginning of the observation period. We usually talked about current news or music tastes for instance. After five weeks observations I was treated as one of the workers chatting at coffee pause. During the observation period also "unofficial" discussions about job took place. These discussions or "worktalk", as I have named it, concerned the issues, which the observed wanted to discuss about. Consequently, these "worktalk"discussions regarded items of meaningful experiences for the planners.

The interviews, conducted after observations, lasted 1 ½ to 2 ½ hours including several sections of items or themes concerning the job and work performance, competencies needed at planning work, challenging situations at work, organisational culture and learning at work. Not all the themes were considered in all interviews, but every interview took its own direction. The purpose of the interviews was to understand peoples' action by getting information about the meanings that guide the action in the setting and in the context of their work. Due to the warm atmosphere created during the observation period I assume that the interviewees ran the risk of discussing with me more honestly than without staying in the setting at all. This is because I was familiar to them and they supposed me to know at least something about their job. The common interpretative space was created before and even new interpretations were possible to be made in interviews. In this study the role of observations is to describe the setting, the context of work and situations in which learning is assumed to occur. By interpreting the action together with interviewees, also meanings given to the learning can be described. Interviews gave me a possibility to deepen and examine the interpretations I have made during the observation period. The analysis of interviews presented in this paper are very preliminary and are based only on half part of interviews and will be later deepened adapting ethnographic and fenomenographic analysis.

4) Preliminary results and tentative remarks from the interviews

Observations and interviews concerning this paper were conducted in GWS Systems Oy in central Finland. GWS Systems Oy is an international supplier of Industrial Workstations and Flexible Production Systems. The company has two business areas; industrial Workstations, GWS Workshop industrial furnishings and Storage Systems. The amount of employees is 300, of which 33 abroad. Products are manufactured at the GWS Oy's production plants in Jyväskylä and Vaajakoski, Finland. The Workstations are specially designed for electronic and telecommunication industries as well as light assembly industries. The main System GWS products are worktables, adjustable tables, production stands, adjustable frames, trolleys, drawer units, chairs flow-through shelving and Manual Transfer System (MTS).

The group of workers, which is examined in this paper, are working as product planners in the team of product development and planning. Specially they are planning and producing adjustable products for customers' needs. Every product is planned on the bases of customers' requirements and is thus special product for the planners and for the production. Typical for these
"Special product planners" is unexpected and new challenges in the work because of customers' special needs. Special products are almost every time a little different from the ones which have been made before, thus, there is necessarily no help of former experience. Planners are facing very different kind of problems and are demanded to find the best possible solutions for customer's needs from case to case.

The work of planners consists of many different working tasks and provides competencies from various areas. They have to face wishes, expectations and demands from different directions. First, before beginning of the planning, a planner has to know the customer's needs conditions and context in which the product will be used. In addition, it is necessary for a planner to know precisely what kind of products is possible to produce with the help of machines on the production floor. Planners' position as if in the middle of assembly line and salesmen, through who customers' needs will be found out, is challenging and demanding and provides continuous interaction with these two group of people. Production floor workers and salesmen are working physical near planners, accordingly, every day negotiations and communication is possible.

Working tasks which planners are responsible for differ a little from one planner to another. Firstly, some of the older planners concentrate on planning of all kinds of products leaving the fixing of prices, calculation of offers and putting under construction to other planners. They have large experience and understanding of product selection from years behind. Secondly, some of them are responsible for the whole group of product as a whole. To control the whole production process of one specific product includes making offers, preplanning, preparing pictures for offers, calculating offers, creating new names for products to the production control system, product planning, production controlling, buying materials, subcontracting, composition and sending the products. Thirdly, in addition to the tasks described below some of the planners have more duties as superiors. Despite of various responsibilities, understanding the processes of production is required from all of them. Both customers' needs and the possibilities of assembly line as the point of departure they try to design a product suited to its purpose.

Accordingly, interest is focused on the question what are difficult and challenging situations in planning work and how learning is taking place in these situations. What kind of themes emerges from interviews concerning learning and learning situations? The themes presented next are preliminary impressions from interviews.

Challenging situations

Four various themes describe challenging situations and learning in these situations in interviews. *The first* of these themes focuses on **how to implement large sales projects as a whole.** The ultimate purpose of a planner's work is to satisfy the scheduled requirements of the client. Planners manage these projects with the help of former experience which helps in seeing both what is important to take into consideration in different situations and how to handle different kind of situations with different kind of people in solving problems connected to the projects with clients. The meaningfulness of work arises out of new challenges and everyday learning experiences. *The second* **theme deals with an arrangement of one's duties in organisation.** Is characterised in sentence "getting things done in time". Working every day and learning from working is challenging but is perceived "only a job", however. Learning is not necessarily taking place through "big experiences" from various every day situations but is rather perceived as accumulation of experiences and competencies. The accumulation of experiences makes it possible to find better solutions. Every product is new and it has to be negotiated with client from case to case. Thus, every new product is always a new learning experience. *The third* theme **arises out of new and challenging situations and assuming responsibility for new duties,** for instance the construction of organisation wide quality system or information system. These kinds of duties have learnt by experimenting and doing things step by step in the long run individually and in teams. *The fourth* **theme focuses on working and communicating with different people (e.g. clients, colleagues, superiors) and groups of people.** The planners experienced various demands expressed by different groups of people very demanding. Planners' position between salesmen, production and clients is sometimes experienced discouraging because of the negative feedback coming from various directions. However, no specific person was named as a source of problems. Instead, the best way to cope with difficult situations is to get to know different people and learn to know how to deal with them. This needs time and diplomacy as one of the interviewees put it.

How is learning taking place?

Four various themes emerged in interviews about learning in the workplace. *The first* theme refers to **acquisition of competence and skills through experience and feedback from colleagues and clients.** Without having a hint of success or failure of the product and its suitability to its assumed context learning and professional development is difficult, even impossible. The more it is possible to implement and plan different products, the more it is possible to understand and presume clients' needs and demands. As one of the interviewee put it: *"...the most important is that you could ask the right questions from the client"*... Especially the feedback from clients is valuable but usually it is not possible to get it enough. Sometimes even the planner himself is very unsure about the suitability of the product and only after months he may hear some feedback from the client or is able to see the product he has planned in its actual conditions. This process of searching the best possible solution and the best possible product is not always pleasurable. It can also be frustrating to continuously negotiate and check the client's point of view. Especially experienced planners felt this way:

> *"...No solved problems of the clients exists...but when you ask different things from client time after time and check that what is absolutely necessary and what is not so necessary property of the product, usually it is possible to find some kind of compromise...Also we have kinds of projects which have lasted for months and still continue...with those projects also the motivation may decrease...it feels as if you have strength to go on with it at all...as if start from the beginning again and again..."*

The second theme deals with **learning as co-operation.** All the interviewees emphasise the importance of collegial feedback and learning from other people at work. Sometimes it seems to rise even the most important aspect of work activities in interviews. Communication and co-operation is seen as a means of running every day working activities. Through every day communication the technical know-how and competence is mediated from experienced workers to novices, but also collegial advice is needed in everyday practices and problem solving. To manage and develop as a planner, it is essential to have courage to ask questions and be anxious to know new things. Without this courage and anxiousness learning and coping with new people and new practices will be difficult for novice planners. The experienced workers are willing to help the novices in new and problematic situations

> *"...It is very pleasant when you have a possibility to ask that 'what do you think of this'...that you can get support or sometimes an honest opinion...and then we together try to look at it, how it should be made...When we are working at the same room it is possible to yell to the other that 'wake up...are you sleeping or what...I need some advice...how would you solve this'...and abuse when our own things are bad...it relieves..."*

The third theme can be described **as learning from experience and learning from mistakes**. Due to demanding and specific nature of planning work learning is mostly perceived as learning by doing the actual job. To make mistakes and getting feedback from those mistakes helps noticing the decisive points in planning work and helps avoiding the same mistakes again. The feedback of any kind is easy to remember.

> *".... Well...development is taking place mostly by...getting new experiences all the time...how would I put it...let's say it this way, when you are planning a totally new product...the first object of...that this is our new product now...we are trying to sell this and it should be used this way...and for this kind of use. And before a possibility to experiment the new product, you only have a fragile impression of how it should work in its real context...but you are quite sure it will work. Then you sell the first one (of this new product) somewhere and the product will be sent to its users who sits on assembly line 8 hours a day...and it is used in three shifts, altogether over 20 hours a day..Then they (users) will have some experiences of what is working and what is not. Then the client contacts the salesman and tells that the product is working just fine but some changes should be made. The salesman contact me and then I realise that....well, well...the context is like this...there are various kinds of machines around the user or the user is taller or shorter than I have imagined or different kind of things should be taken into account. Next time you are doing the same kind of product again you know what to ask from the client. Then you have better chances to ask what is needed to ask. This way you can get experiences..."*

Also the emotions of experiences seems to make learning very effective. Firstly, negative feedback is avoided because it is unpleasant. Secondly, the fluency of work is accepted, that is, if you have been too careless you probably will have to face your mistakes sooner or later and this causes unnecessary troubles. Thirdly, the annoyance caused to colleagues or employers is avoided by trying to attend one's own part of the practice as well as possible. Fourthly, concern of clients and employers contentment and desire to do "right things in the right way"

The fourth theme deals **with the acquisition of "technical way of thinking"**. The work of planners provides competencies of various areas but one of the most important sides of this competence is technical way of thinking. When asked about the content of this way of thinking clear answers seem difficult to get. It seems to be even as large as culturally constructed way of life, which is obtained from different places and situations of life and is continuously increased by visiting for instance exhibitions and clients. It includes an interest in technical equipment and technical solutions coming from leisure time hobbies, education and work. Specially in planning work, where the wide range of competencies is needed, this way of thinking seems to have a special importance. Perhaps this is the reason why all the planners of this group also have some former experience from the production floor or customer services.

> *"...There must be some points of departures there... the directions from to see (the job)...you must think about what are the requirements of planning a new product, do we have machines needed, is it reasonable to do it this way or...If you have, on the other hand, for instance economical education or background you don't think it primarily from the production or from the client's point of view, instead you think that 'sure we can do this kind of thing and sell it without thinking production and planning any further...Sure you can learn any kind of job in the long run but technical education and interest in techniques helps a lot."*

In addition, the theme of using and learning information technology by younger and older planners and differences between these two groups of workers has risen to one of the interesting themes. This theme will be more closely examined in future papers and articles.

5) Conclusions and directions for the future efforts

The aim of this presentation as one part of the larger research effort is not to try to describe the processes of learning yet, but to describe challenging learning situations of every day work perceived by planners, and to shape preliminary themes of learning at work. To sum up so far, it seems that for some interviewees learning in the workplace means challenging situations and interesting experiences, for the other interviewees learning means accumulating and improving one's competencies from the every day job by doing. On the basis of interviews it can be noted that processes of learning are difficult to reach for the interviewed. However, it might be concluded on basis of preliminary impressions from the interviews, that learning is not necessarily located in certain situations of every day work. Instead, it is seen more like accumulation of competencies needed at work and everyday co-operation in which the learning processes are embedded. Also Lavikka (2000) has concluded in her study of production floor workers in Finland, that changing competencies seemed to be constructed by processes of achievement of goals at individual, group and organisational level. The competencies of different groups of people in the workplace are developed at the same time as every day problems and challenging situations are to be solved. Accordingly, on the basis of the interviews, this every day learning is difficult to describe when learning processes are at hand. Rather, due to the accumulative nature of learning, it may be possible to reach and evaluate the processes and situations of learning after a course of time.

Osterlund's (1996) observational data of salespeople's learning at work could not support the assumption that salespeople memorise or internalise a number of concepts, rules and problem-solving models which later shape their work practices and ways of perceiving and conceptualising the sales processes. Rather, the sales representatives he observed learned to direct elaborate and adjust their participation in multiple contexts. Accordingly, newcomers learned to weight, evaluate and direct their actions with and against other participants in different contexts. Also he calls for seeing learning as embedded in socially situated structures of ongoing practise and across the contexts of practises.

Likewise, the preliminary results of the present study suggest that learning at work occur in participation to every day practices of work in a community of practice. However, the interviewees described their learning also as accumulation of experiences and competencies at individual level. Thus, it seems that the metaphors of learning as acquisition of knowledge and as participation within a community of practise are to be connected. As far as I can see it then, the most important question is, how individual knowing and competence is possible to harness to the use of a group or a community as a whole

Since these results presented here are preliminary it is possible that further analysis will lead both to modified themes to be found and different conclusions to be made. Especially the observational data is lacking in this preliminary analysis. At the later stage of the research effort the observations are intended to be analysed in order to connect the interviews to the wider context of workplace learning in one enterprise. The meanings of learning are better understood in seeing the context from which they are emerging. Accordingly, interviews will be further analysed and deepened adapting ethnographic and fenomenographic analysis. Questions to be taken into consideration in further analysis are, 1) how observations and interviews will be connected and 2) is it possible to examine the meanings produced in interviews as meanings of learning in general. Thus, the focus should be on what the interviews tell about planner's experiences, perceptions and interpretations and what the observations tell about the contexts in which learning is assumed to take place. Also the interviewees themselves should examine the first results and interpretations from the data in order to verify the interpretations of the researcher. Further, observations and interviews in another enterprise will be collected and compared with the data collected from the other enterprise.

References

Benson, G. 1997. The informal learning takes off. Training & Development, 5 (51), 93-95.

Bouwen, R.1998. Relational construction of meaning in emerging organization contexts. European Journal of Work and Organizational Psychology 7 (3), 299-319.

Boud, D., Freeland, J., Hawke, G. & McDonald, R.1998. More strategic, more critical, more evaluative: Perspectives on research into workplace learning and assessment. In D. Boud (ed.) Current issues and new agendas in workplace learning. Springfield (Va.): NCVER, 136-150.

Boud, D. & Miller, N. 1996. Synthesising traditions and identifying themes in learning from experience. In D. Boud & N. Miller (ed.) Working with experience. London: Routledge, 9-18.

Brown, J. S. & Duguid, P. 1991. Organizational learning and communities-of-practice: Toward a unified view of working, learning and innovation. Organization Science 1 (2), 40-57.

Candy, P. & Matthews, J. 1998. Fusing learning and work: Changing conceptions of workplace learning. In D. Boud (ed.) Current issues and new agendas in workplace learning. Springfield (Va.): NCVER, 9-30.

Darmon, I., Hadjivassilou, K., Sommerlad, E., Stern, E., Turtsin, J. with Danau, D. 1998. Continuing vocational training: key issues. In F. Coffield (ed.) Learning at Work. Bristol: The Policy Press, 23-36.

Darrah, C. 1995. Workplace training, workplace learning: a case study. Human Organization 1 (54), 31-41.

Eraut, M., Alderton, J., Cole, G. & Senker, P. 1998. Learning from other people at work. In F. Coffield (eds.) Learning at Work. Bristol: The Policy Press. Pp. 37-48.

Eraut, M., Alderton, J., Cole, G. & Senker, P. 1998. Development of knowledge and skills in employment. Final report of a research project funded by "The Learning Society" Programme of the Economic and Social Research Council. University of Sussex.

Henriksson, K. 1999. The collective dynamics of organisational learning. Lund Studies in Economics and Management 49. Lund University Press.

Garrick, J. 1999. Doubting the philosophical assumptions of interpretive research. International Journal of Qualitative Studies in education 2 (12), 147-158.

Garrick, J. 1998. Informal learning in corporate workplaces. Human Resource Development Quarterly 9 (2), 129-144.

Gerber, R., Lankshear, C., Larsson, S. & Svensson, L. 1995. Self-directed learning in a work context. Education + Training 37 (8), 26-32.

Gerber, R. 1998. How do workers learn in their work? The Learning Organization 5 (4), 168-175.

Hammersley, M. & Atkinson, P. 1995. Ethnography: Principles in Practice: London: Routledge.

Henriksson, K. 1999. The collective dynamics of organisational learning. Lund studies in economics and management 49. Lund University Press.

Jarvis, P. 1992. Paradoxes of Learning. San Francisco: Jossey-Bass.

Karakowsky, L. & McBey, K. 1999. The lessons of work: toward an understanding of the implications of the workplace for adult learning and development. Journal of Workplace learning 11 (6).

Koike, K. & Inoki, T. 1990. (ed.) Skill formation in Japan and Southeast Asia. Tokio: Tokio University Press.

Lave, J. & Wenger, E. 1991. Situated learning. Legitimate peripheral participation. Cambridge university Press.

Lave, J. 1993. The practice of learning. In S. Chaiklin & J. Lave (eds.) Understanding Practice. Perspectives on Activity and Context. Cambridge University Press. Pp. 3-34.

Lavikka, R. 2000. Palvelukseen halutaan 'hyvä tyyppi' eli osaaminen perinteisessä teollisuudessa. Sosiologia 1, 1-17.

Lähteenmäki, S., Mattila, M. & Toivonen, J. 1999. Being critical on organisational learning research – towards developing a measure. In S. Lähteenmäki, L . Holden & I. Roberts (eds.) HRM and the

Learning Organisation. Publications of Turku School of Economics and Business Administration. Series A-2.

Marsick, V. J. & Watkins, K. E. 1992. Towards a theory of informal and incidental learning in organizations. International Journal of Lifelong education 4, 287-300.

McGill, M. E. & Slocum, J. W. 1994. The smarter organisation: How to build business that learns and adapts to marketplace needs. New York: Wiley

Merriam, S. B. & Heuer, B. 1996. Meaning-making, adult learning and development: a model with implications for practice. International Journal of Lifelong Education 4 (15), 243-255.

Orr, J. E. 1996. Talking about machines. An ethnography of a modern job. Ithaca, NY: IRL Press/Cornell University Press.

Osterlund, C. S. 1996. Learning Across Contexts. A field study of salespeople's learning at work. Aarhus Universitet. Psykologisk skriftserie 1 (21).

Sandberg, J. 1994. Human competence at work. Göteborg: BAS.

Sandberg, J. 2000. Understanding human competence at work: an interpretative approach. Academy of Management Journal 1 (43), 9-25.

Sfard, A. 1998. On two metaphors for learning and dangers of choosing just one. Educational Researcher 27, 4-13.

Torraco, R. J. 1999. Integrating learning with working: A reconception of the role of workplace learning. Human Recource Development Quarterly 3 (10), 249-265.

Wenger, E. 1998. Communities of practice. Learning, meaning and identity. Cambridge University Press.

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Induced labour mobility through continuing vocational training: Investigating its development and role in the French context during the last three decades[1]

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ABSTRACT

Formally introduced in 1971, the "Continuing Vocational Training (CVT)" system was specifically designed to promote workers' "socio-professional promotion". The contribution of its induced mobility to the fulfilment of this objective has always been considered as one of its key performance indicators. After an overview of the general structure of the CVT system, the first section of this paper investigates into the development and effect of its induced mobility on the beneficiaries' socio-professional promotion over the last three decades. The results confirm the general tendency of an increasing horizontal mobility at the expense of a declining promotional mobility (known for its high link with socio-professional promotion). The second section of the paper completes this investigation by examining the concomitant change in the dynamics of vocational identity formation processes affecting the performance of the CVT system during the same period.

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[1] This paper (as an individual session paper) is a contribution to the preliminary material related to the European project "FAME" which was formally launched on the 1^{rst} of March 2000. It is a seven-country study on "vocational identity, flexibility and mobility in the European labour market".

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INTRODUCTION

Since its formal introduction in the early 70s, the Continuing Vocational Training system (CVT) has remained a combination of two basic approaches to work-related learning: employee-self directed CVT and employer-oriented CVT. It was mainly designed to promote, as one of its founding missions and objectives, employees' access to learning, training and "socio-professional promotion". The induced mobility of its beneficiaries is one of the key performance indictors generally used to assess empirically the contribution of the system to the fulfilment of its basic objectives.

On the basis of the INSEE's (The French National Board for Statistics) successive surveys on Vocational Training and Qualifications ("VTQ": enquêtes Formation Qualification Professionnelle: « FQP »), this paper attempts to examine, in the first section, the contribution of CVT system to its beneficiaries' "general socio-professional promotion" through the induced mobility during the last three decades. This will be preceeded by an outline of the general structure of the existing CVT system including a typology of its induced notions of mobility.

The second section of the paper, completes the investigation by exploring the concomitant contextual changes taking place during the same period, in relation to the process of vocational identity development and its influences on working individuals' socio-professional promotion.

I- CVT AND THE DEVELOPMENT OF ITS INDUCED MOBILITY

Before investigating into the development of CVT-induced mobility and its effects on its beneficiaries' socio-professional promotion, it is important to start by introducing the general structure of the existing CVT system, and giving a typology of the notions of labour mobility usually used as performance indicators.

1- General structure of the French continuing vocational training system (CVT)

As a complement to initial general and vocational education, the French Continuing Vocational training (CVT) system was specifically introduced and designed to promote continuous access to further learning and training of individuals during their whole working life. It concerns all working individuals, as employees or self-employed, in the private or the public sector, on national and regional levels (cf. M. Dif 1999a; V. Michelet, 1998).
Its intermediary and ultimate objectives are basically:

- The promotion of equal chances for access to further learning and training;
- Contribution to workers' "socio-professional promotion" (such as continuous access to employability, promotions, higher qualifications/wages, functional flexibility and mobility, higher socio-professional status within the organisation);
- Reducing the effects of exclusion initially generated by the selectivity and insufficient learning path-fluidity within the dominant initial education and training system;
- Bridging the gap between learning and production spheres, basically through the promotion and accreditation of work related learning.

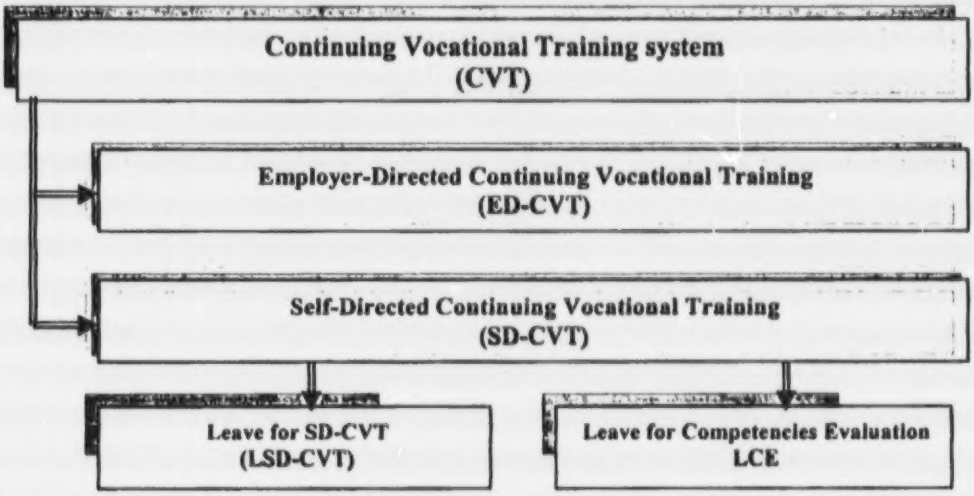
Since its introduction in the early 70s, the CVT system continues to function according to following formal mechanisms, namely:

The obligatory financial contribution of the organisation: It is specific to the French CVT system, that all kinds of organisations have to contribute to its financing. For private companies with at least ten employees this contribution is about 1,5% of their wage bill and 0,25% for those employing less than 10 people. In fact, their real spending on CVT development goes beyond this compulsory contribution. It represented on average in 1996 3,3% of their wage bill (i.e. a little bit over the double of their legal contribution). Their share in the whole spending (on national and regional level) had risen from 53,1% in 1987 to 54,7% at the end of 1996. Within the public sector, this contribution varies, according to the nature of the organisation and its adopted training scheme, between 0,10% and 3,8% of the wage bill on average. Their contribution on national level, which represented 45,5% of the whole spending on CVT, had declined to 43,7% in 1996 (cf. V. Michelet, 1998). These contributions are generally collected by a special type of collecting institutions called OPCA (Organismes Paritaires Collecteurs Agréés) created and run by the social partners. This collector network is represented by 99 OPCA: 49 are sector collectors on the national level and 50 are exclusively inter-professional regional collectors.

The employees' access to CVT is either employer-directed or employee-directed learning: Since its formal introduction in the early 70s, CVT system has remained a combination of two basic approaches to learning (cf. figure 1 below)):

- Employer-directed continuing vocational training (ED-CVT);
- Employee-self initiated and directed continuing vocational training (SD-CVT).

Figure 1: French Continuing vocational Training system: the general structure


Continuing Vocational Training system
(CVT)
Employer-Directed Continuing Vocational Training
(ED-CVT)
Self-Directed Continuing Vocational Training
(SD-CVT)
Leave for SD-CVT
(LSD-CVT)
Leave for Competencies Evaluation
LCE

The employer-directed continuing vocational training system (ED-CVT) is the most dominating component within the CVT system in terms of training flows and financial resources used. It is planned and implemented within the organisation's vocational training scheme, which includes all kinds of short and medium term vocational training programmes aiming generally at the promotion of internal labour flexibility and mobility.

As an employee's choice and a preference guided system, the employee self-directed continuing vocational training (SD-CVT) is usually carried out through two main formally institutionalised vocational training regimes: Leave for self-directed CVT (LSD-CVT) and leave for competencies evaluation (LCE) (cf. M. Dif, 1999a et 1999d).

The LSD-CVT ("CIF") regime was specifically designed to allow any worker, during his or her working life, to take a paid leave to pursue, independently of the organisation's training scheme, a self initiated and directed training project. It was extended in 1991 to take into consideration the case of precariously employed individuals. As a promoter of free choice and equal chance for access to learning of all the organisation's employees, the training chosen according to this regime can be vocational with a variety of ultimate aims such as the promotion of the worker's flexibility and mobility within the organisation or just a punctual adaptation to changes in technology and labour market structures. The leave can also be for non-vocational learning purposes with the aim of allowing the beneficiary to acquire general qualifications and/or get more involved in the social and cultural life. It is financed through the employer's compulsory contribution of 0,20% of the wage bill, collected and run, since 1984, by an independent parity organism called OPACIF.

As for the LCE ("CBC"), it allows its beneficiaries with a minimum working experience (of 5 years, of which one year at least was with the last employer) to restate clearly their own carrier projects in the light of a thorough vocational and personal competencies evaluation programme. As is the case with the LSD-CVT regime, the LCE beneficiary has the same kind of guarantees given by the LSD-CVT regime such as free choice, equal access and funding. Moreover, it is adaptable to the individuals employment status: permanent, limited duration or temporary employment.

2- Typology of the notions of mobility used as performance indicators

Labour mobility is basically an induced concept. It is generally considered one of the consequences of:

- The phenomena of flexibility-based new modes of organisation and human resource management, globalisation and the accelerated rhythm of technological change during the last three decades or so;
- Related change in the process of identity formation and development (on individual and collective levels);
- The instrumental use of VET in general and CVT in particular.

In a French context, this concept is traditionally used a key performance indicator to evaluate the contribution of continuing education and training to "social promotion" (i.e. its contribution to the promotion of individuals' access to employment, learning, training and socio-professional promotion in general).

Three basic types of labour mobility are observable in the French context: *Socio-professional*, *vertical (or hierarchical)* and *horizontal* mobility (cf. G.Podevin, 1998; C. Dubar & G.Podevin, 1990):

- **"*Socio-professional mobility*"** or simply **"*social promotion*"** consists of working individuals' passage from one socio-professional category to a higher level. The socio-professional categories are generally defined within the framework of a formal nomenclature of professions and social categories (PCS: Professions et Catégories Sociales) by grouping working individuals into the following basic groups: non-qualified workers (NQW or ONQ), qualified workers (QW or OQ), employees, technicians and supervisors, engineers and executives. In general, their socio-professional promotion is empirically determined by comparing the initial (first employment) situation of each group to other subsequent situations. Therefore, it is included, as well, in this process the phenomena of counter-mobility and caught-up redeployment.

- ***"Vertical (or hierarchical) mobility"*** when there is a promotion to a higher employment position requiring higher qualifications within the same socio-professional category. The latter is generally considered as a prerequisite for access to a higher level of professional mobility and socio-professional promotion in general. This type of mobility, called alternatively hierarchical (upward/downward) mobility, is empirically observed through the respondent answer to the following question: Will this training allow you, when it is completed, to have access to a new job/responsibility with higher/lower qualifications or a higher/lower hierarchical position than before? The vertical mobility thus determined can be either upward hierarchical mobility, downward hierarchical mobility or no mobility at all.
- ***"Horizontal mobility"*** concerns the individual's movement between jobs with more or less equivalent levels of qualifications and responsibilities, usually within the same socio-professional category. This movement can be within the same firm in the case of "***internal labour mobility***" and between firms in the case of "***external labour mobility***".

For empirical and analytical purposes, they are usually grouped into two basic categories: *promotional mobility* and *occupational (professional) mobility*.

- The "***promotional mobility***" is generally a combination of both: the socio-professional mobility and the hierarchical mobility.
- As for the term "***occupational or professional mobility***", it is usually used when vertical mobility and horizontal mobility are looked at as one type of mobility. Within the latter case, there is generally a distinction between: CVT-induced internal mobility and CVT-induced external mobility.

3- Development and effects of CVT-induced promotional mobility

In spite of the efforts put into its development during the last three decades, the CVT system did not contribute, as effectively as it was expected, to its beneficiaries' "socio-professional promotions" in terms of promotional mobility. If the proportion of the latter represented 20% of CVT-beneficiaries in the early 70s, it had, generally gone down during the 90s to an average level oscillating between 12% and 15% (cf. G. Podevin, 1998).

This result is, on the whole, confirmed by two sources of data (cf. C. Dubar and G. Podevein, 1990):

- Employers' (with at least 10 employees) declarations about their compulsory financial contribution to CVT and alternating vocational training financing, i.e. "declaration 2483" treated by CEREQ (e.g., Céreq 1989).
- INSEE's (French National Board for Statistics) successive sample surveys on vocational training and qualifications ("VTQ" or FQP: enquêtes Formation Qualifications Professionnelles, e.g: 1970, 1977, 1985, 1993).

In general, both sources agree on the fact that access to CVT and promotions are to a certain extent determined by structural factors such as the size of the company, its organisational structure and mode of human resource management in relation to the nature of its sector:

- Sectors with a relatively high link between access to CVT and promotional mobility, such as steel transformation, chemistry, electronics and aeronautics. Even if the promotional flow does not exceed, on average, 3% of beneficiary employees every year, the important spending on CVT has always been accompanied by a significant rate of internal promotions within the established hierarchies of socio-professional categories.

- By contrast, sectors with less spending on CVT such as hotels, restaurants and private services to households, are generally characterised by low internal promotional mobility.

If this is generally the case on sector level, is there any significant link between access to CVT and promotional mobility on the individual level? The INSEE's successive sample surveys on vocational training and qualifications (VTQ) are the only sources available for investigation on this level. Thus, the observed link between access to CVT and promotional mobility seems to be in general lower on individual organisation level than on a sector level. This is basically due to structural differences, implying that not all organisations, within sectors generally characterised by a relatively high level of access to CVT and induced promotional mobility, possess exactly the same character. For instance, even in the nationalised public sector known for its high CVT induced promotional mobility, the rate of CVT induced promotional mobility in general and CVT induced hierarchical (upward) mobility in particular, did not go beyond one third during the first half of the 80s (cf. C. Dubar and G. Podevein, 1990).

However, in terms of the last two surveys treated by Céreq (***CE***ntre for ***RE***search on ***Q***ualifications), a distinction can be established between two cases of induced promotional mobility data (cf. C. Dubar and G. Podevein, 1990; F. Berton & G. Podevin, 1991, G.podevin, 1998, M. Dif, 1999a and 1999d):

- The case of declining ED-CVT induced promotional mobility;
- The case of increasing SD-CVT induced promotional mobility.

Declining ED-CVT induced promotional mobility:

A decade after the CVT introduction, the beneficiaries of a ED-CVT induced "socio-professional mobility" (13,8%) were about the double of those who got the same kind of promotions but without any prior access to any CVT. During the first half of the 90s, the proportion of the beneficiaries of this type of induced mobility had gone down to 12,1%, while that of non-CVT beneficiaries increased up to 8,5%. The decline of ED-CVT induced "socio-professional mobility" had apparently touched most of non-qualified workers' promotion to the category of qualified workers (cf. table 1).

Table 1: ***Development of ED-CVT induced promotional mobility***

	Non CVT induced socio-professional mobility		**Induced socio-professional mobility**		**Induced hierarchical upward mobility**	
	1980-85	**1988-93**	**1980-85**	**1988-93**	**1980-85**	**1988-93**
All socio-professional categories	**6,7%**	**8,5%**	**13,8%**	**12,1%**	**25,1%**	**8,0%**
Non-qualified workers	19,6%	24,2%	55,4%	42,0%	27,5%	10,9%
Qualified workers	3,7%	5,2%	12,9%	16,7%	24,9%	10,3%
Employees	4,6%	6,4%	14,2%	17,5%	31,2%	10,1%
Technicians	6,4%	8,0%	9,3%	8,1%	25,8%	6,3%
Engineers and executives	-	-	-	-	21,5%	5,8%

Source: INSEE's sample surveys on VTQ (1980-85) and (1988-93) treated by Céreq.

The deterioration of ED-CVT induced hierarchical upward mobility was even higher during the same period. Its decline from 25,1% in the early 80s to only 8% during the first half of the 90s touched, to a variable degree, all socio-professional categories in general and the category of employees in particular (cf. table 1).

Increasing SD-CVT induced promotional mobility:

In terms of its contribution to the development of the promotional mobility over the same period, the overall performance of SD-CVT is relatively higher than that of the ED-CVT. This is in spite of its lower weight in terms of output and financial resources used. In fact, the situation was reversed in the case of its induced socio-professional mobility which had gone up from 16,9% in the early 80s to 20,2% of the total number of SD-CVT beneficiaries during the first half of the 90s. With the slight exception of technicians, engineers and executives, all the other socio-professional categories benefited from this improved situation, especially workers: about 7 out of non-qualified SD-CVT beneficiaries were promoted to qualified workers (cf. table 2 below).

As for SD-CVT induced hierarchical (upward) mobility, in spite of its overall decline for all socio-professional categories by about 50% on average, its link with SD-CVT is still higher than in the case of ED-CVT induced vertical mobility (cf. table 2).

Table 2: ***Development of SD-CVT induced promotional mobility***

	Induced socio-professional mobility		**Induced hierarchical upward mobility**	
	1980-85	**1988-93**	**1980-85**	**1988-93**
All socio-professional categories	**16,9%**	**20,2%**	**21,2%**	**11,0%**
Non-qualified workers	58,3%	66,8%	21,1%	12,7%
Qualified workers	14,0%	26,0%	36,3%	15,3%
Employees	15,6%	26,9%	25,8%	9,2%
Technicians	14,3%	14,0%	25,0%	12,2%
Engineers and executives	-	-	22,5%	13,9%

Source: INSEE's sample surveys on VTQ (1980-85) and (1988-93) treated by Céreq.

4- CVT-induced occupational mobility:

Its development:

The link between CVT and the induced "occupational mobility" (horizontal and vertical) has undergone an important decline over the last three decades. Twenty five years after the CVT formal introduction, there were about 64,5% of SD-CVT beneficiaries and 87,4% of trainees within ED-CVT programmes, to declare no change in their occupations in terms of vertical and horizontal mobility had been obtained. In fact, it was observed within the rare case of those whose employment situation had really been changing, an increasing proportion of induced horizontal occupational mobility. The ratio of the latter to induced vertical mobility had effectively gone up from 6,1% in the early 70s to 40,2% in the mid-nineties in the case of ED-CVT, and from 12,7% in 1970 to 57,7% at the end of 1993 as far as SD-CVT was concerned (cf. table 3).

This change within the occupational mobility in favour of horizontal mobility, is evidently linked to the organisational changes within firms. The emerging models for human resource management and development within these organisations are more motivated by the rationale of economic efficiency and competitiveness than with the socio-professional promotion of its working members. A flexibility-based model usually called the "post-taylorian" model founded basically on the reduction of pyramidal hierarchies (and hence vertical mobility) and the development of new forms of technico-organisational and functional flexibility-mobility (cf. M. Dif, 2000a; G. Podevin, 1998).

Table 3: ***Development of CVT induced occupational mobility***

INSEE's successive sample surveys on vocational training and qualifications	ED-CVT induced occupational mobility				SD-CVT induced occupational mobility			
	Horizontal mobility (a)	Vertical mobility (b)	No declared mobility	Ratio (a)/(b)	Horizontal mobility (a)	Vertical mobility (b)	No declared mobility	Ratio (a)/(b) %
VTQ 70	3,4%	55,4%	39,2%	6,1%	4,1%	32,2%	-	12,7%
VTQ 77	5,9%	33,6%	49,9%	17,6%	4,4%	29,6%	54,8%	14,9%
VTQ 85	8,7%	25,1%	65,0%	34,7%	6,7%	21,2%	57,2%	31,6%
VTQ 93	3,5%	8,7%	87,4%	40,2%	6,4%	11,1%	64,5%	57,7%

Source: INSEE's sample surveys on VTQ treated by Céreq.

Its effects:

The observed effects of CVT development on its beneficiaries' level of responsibilities and working conditions, qualifications and salaries are more related to the induced form of occupational mobility: vertical or horizontal.

Its effects on the beneficiaries' responsibilities and working conditions:

First, among all CVT beneficiaries declaring no change in their employment situation (i.e., no occupational mobility), 45,5% out of them could however benefit from improved working conditions. For the rest , only the luckiest of them, representing about 7,3%, could have access to higher responsibility positions.(cf. table 4)

Secondly, within the case of a declared change in the employment position (i.e., the case CVT-induced horizontal mobility), an important difference was observed between two basic types of occupational mobility: an *external mobility* when the movement concerns changing employers and *internal mobility* if the change is taking place within the same firm. Within the latter case (i.e., internal occupational mobility) 55% of employees concerned benefit from an increased responsibility, against only 24,4% with improved working conditions. But, in the case of external occupational mobility, 35% of CVT beneficiaries have access to a higher responsibility and 33% of them could get their working conditions relatively improved (cf. table 4).

Thirdly, when the CVT induced occupational mobility is the result of a job promotion (as an internal vertical mobility), it is not surprising to find out that 71,1% of CVT beneficiaries declare their real access to a higher level of responsibility and qualifications, but only 18,3% of them benefit at the same time from an improvement in their working conditions (cf. table 4).

Table 4: ***CVT effects on its beneficiaries responsibilities and working conditions through the induced occupational mobility during the priod:1988-93***

CVT Induced occupational mobility and its effects	Increased responsibility	Improved work conditions	Other effects	No effects
No mobility	7,3%	45,5%	7,9%	39,3%
External mobility	35,0%	33,0%	13,5%	18,6%
Internal mobility:	55,0%	24,4%	6,2%	14,4%
- Vertical	*71,1%*	*18,3%*	*2,8%*	*7,7%*
- Horizontal	*23,8%*	*35,2%*	*12,2%*	*28,8%*

Source: INSEE's sample survey on VTQ (1988-93) treated by Céreq.

Its effects on the beneficiaries' wages and qualifications

By contrast, only 23% of those who were (voluntarily or involuntarily) living a CVT induced horizontal occupational mobility could get access to a higher level of responsibility and qualifications. In fact, the low compensations offered to those employees who after their completed training find themselves moving between equivalent jobs, is confirmed by the low level of their wage. Only 15% of them could benefit from a wage increase compared to 81% of those whose training allowed them to have access to upward hierarchical mobility within the firm (cf. table 5 below).

Table 5: ***CVT effects on its beneficiaries' wages and qualifications through the induced occupational mobility during the priod:1988-93***

	Increased	Stable	Reduced
Vertical mobility	81,0%	17,1%	1,9%
Horizontal mobility	15,0%	78,2%	6,8%

Source: INSEE's sample survey on VTQ (1988-93) treated by Céreq.

II- CONCOMITANT CONTEXTUAL CHANGE IN THE PROCESS OF IDENTITY FORMATION AND ITS EFFECT

In addition to continuing access to learning and training, the individual's socio-professional promotion is highly determined by the mode of identity formation and development over time and space. Since the introduction of the CVT system in the early 70s, the process of "vocational"[3] identity formation has undergone an important structural change. This coincides with the end of the Fordist economy and the advent of the new economy based on globalisation and flexibility paradigm (cf. M. Dif 1998 & 1999a).

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[3] The related term "vocation" used here is rather controversial and subject to many interpretation even within the same country. In France, for instance, it has four basic meanings depending on its contextual use (cf.: C. Dubar and P. Tripier, 1998: *Sociologie des professions*, Armand Colin, Paris):

- First meaning is equivalent to a declaration, i.e. the "declared profession" by the individual as it is the case in a population census. In this sense, it is more or less closer to the term "calling" (i.e., vocation) in English or to the German term "Beruf".
- Second meaning is equivalent to an "occupation" for living: a paid for occupation. In this sense, it is equivalent to what usually appears, for instance, on any working individual's pay-slip (engineer, doctor, researcher, specialised worker, ...).
- Third meaning is equivalent to a "speciality" in a profession (e.g., sociologist, economist, minor,...).
- Fourth meaning is equivalent to a "function" or a "mission" within an organisation or in a group (e.g. project manager, a team co-ordinator, ...).

For the period of sustained economic growth with a relatively low rate of unemployment (1965-1975) Renaud Sainsaulieu conducted an important empirical investigation into work related identity formation processes, based on 200 interviews and 8,000 questionnaires, covering all categories of employees of public and private companies within different sectors such as electricity production and supply (EDF), railway transport (SNCF), insurance, chemistry, food and mechanical industries. He identified four models for identity formation at work: "fusion", "negotiation", "affinities" and "retreat" models (cf. R. Sainsaulieu, 1977, 1985, 1994, 1996 & 1997).

The first model is a ***"fusion"*** or a "community"- based relationship model, which concerns basically specialised workers. Within this model, the collective identity is considered as a refuge and protection against divergences and clashes. The relationship between its members are more founded on affection, solidarity and co-operation than on conflict. For the survival of the group, the existence of a hierarchical authority (a chief or a leader) is crucial for guidance and mediation in cases of conflict.

By contrast, the ***"negotiation"*** type of vocational identities, specific to professional employees and executives, is based on the acceptance of differences and the use of negotiation and open democratic debate to solve any situation of conflict. The members of this collective identity refuse any imposed hierarchical authority. They rather prefer a leader who imposes himself or herself through work and mediation within the group. Moreover, they are highly attached to their profession and autonomy.

As for the ***"affinities"*** identity, it is changing over time due to a high socio-professional mobility of its members. It includes self-directed learners (technicians and executives) within professions which are undergoing rapid change. The interpersonal relationships within the groups are selective and affective. The chief is accepted only as project promoter. The group leader is considered as a hindrance to individual socio-professional promotion.

Finally, the identity of ***"retreat"***, concerns those individuals who use work as an instrument to benefit from or to have access to another type of life, such as family life, leisure, etc. It includes as well the excluded employees (or on the margin of exclusion) such as non-qualified or less qualified workers, near retirement employees and other categories of employees who are marginalised because of their employment status, their ethnic origins or simply because of the nature of their educational and training background. Within these atomised identities where leadership is not looked for, a strong hierarchical authority is needed for co-ordination.

These models of work related identities are formed during the period of a high economic growth, accompanied with a relatively low rate of unemployment. They are basically applicable within companies functioning according to the Fordist model. Twenty years later this typology had to adapt to the requirement of the new economy (the post-fordist economy). By the end of the 80s, R. Sainsaulieu *et al* adapted and extended these models of vocational identities, through a multidimensional study covering 296 socio-professional groups identified within a set of 81 companies' monographs from all sectors of the economy (cf. I. Frankfort, F.Osty , R. Sainsaulieu & M. Uhald, 1995).

In the light of the results of this investigation, Sainsaulieu's four forms of vocational identity were adapted and extended by taking into consideration simultaneously two types of interactivity: sociability (i.e., relational interactivity) and mode of interactivity with work (against interactivity through the established rules and regulations within the organisation). The observed developments are as follows (cf. figure 2):

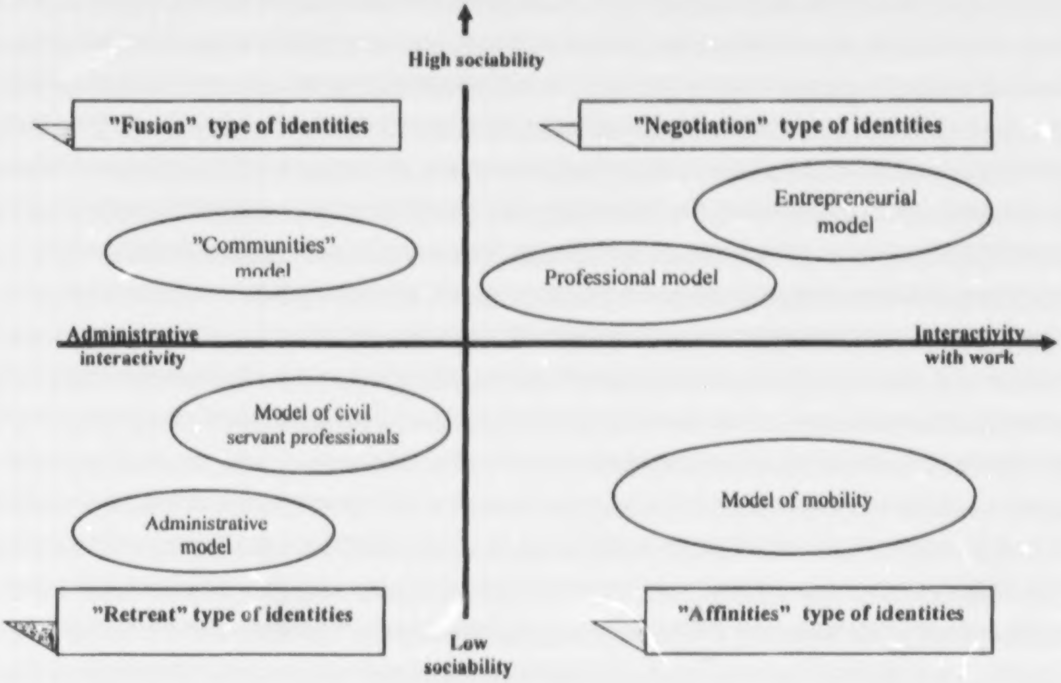
- The decline of the ***"fusion" type of identities*** and its development into a ***community form of identities*** whose members are highly attached to colleagues, their formally established professional status and working conditions within the organisation. It concerns all categories of employees accumulating a long working experience (generally over 15 years) within public and private organisations belonging basically to the traditional activity sectors which are undergoing important organisational and structural changes as it is the case in steel and car industries, banking and transport sectors. As a result, these communities which are traditionally based on a high level of collective solidarity and relational interactivity, are breaking down into micro groups and classes.

- As for the ***"retreat" identity***, it is developing in two ways. The first development is simply an extension of the same "retreat" type of identities to what Sainsaulieu called ***"the administrative model"*** to include a new category of employees made of individuals destabilised by technological change and threat of exclusion. They use the routine of the established administrative rules and regulations as means of protection against change and potential risk of exclusion. Half-way between the original "retreat" model and its extension to the administrative model, the second development consists of the emergence of a completely new category of employees in a direct link with clients and more active in counselling within the developing public sector. They call themselves "the civil servant professionals" i.e. ***"the model of civil servant professionals"***.

- The adaptation of the ***"negotiators' model"*** of vocational identities to include two more or less related developments characterised by a high level of both relational and work-based interactivity. The first development takes into consideration the emergence of what Sainsaulieu calls "the professionals" in fields closely linked to the development of new technologies i.e., the ***"model of professionals"***. They are highly attached to comradeship values based on a well done job, autonomy, apprenticeship, trustworthiness and solidarity between members of the profession. This can be interpreted as an indicator of "re-professionalisation" of industrial work. The second development, within the general framework of "negotiators' model of identity formation, concerns the emergence of a new dynamic category of working individuals (managers, executives, sellers, ...) who possess the competencies which allow them to invest in change, in collective mobilisation and to be, at the same time, highly integrated within the organisation as a whole. Sainsaulieu baptised this new form of vocational identity as the ***"entrepreneurial model"*** or simply the "corporate identity" model.

- Finally, the ***"affinities model "*** of vocational identities has developed since the 70s into what Sainsaulieu called the ***"model of mobility"*** of identity formation, based on a combination of a high level of interactivity with work and low sociability. As a result of an increased scarcity of job promotional opportunities due to development of flexibility-based mode of human resource management within companies with more flat organisational structures, a new generation of dynamic and "mobile" workers (specialised technicians, executives, young graduates) has emerged during the last three decades. They are more inclined to secure their socio-professional promotion through a project-based personal strategies founded on occupational flexibility-mobility. Their relational network investment is primarily oriented towards the achievement of their personal career projects than those of the group or the organisation.

Figure 2: ***Sainsaulieu's forms of vocational identities and their models***


High sociability
"Fusion" type of identities
"Negotiation" type of identities
Entrepreneurial model
"Communities" model
Professional model
Administrative interactivity
Interactivity with work
Model of civil servant professionals
Model of mobility
Administrative model
"Retreat" type of identities
"Affinities" type of identities
Low sociability

Moreover, on the basis of three empirical investigations conducted by three different research groups during the 80s[4], Claude Dubar confirmed in different terms the same evolutionary four forms of vocational identities (identified by Renaud Sainsaulieu, 1977, 1985, 1995 & 1996). By adopting an inductive analytical approach, he explained the individual's vocational identity formation as a process of double transactions: biographical and relational transactions (cf. C. Dubar, 1991, 1994 & 1998; C. Dubar & S. Engrand, 1991).

The ”biographical transaction” refers to time-dependent individual's identity formation by ”negotiating with oneself” (identity for oneself) and planning his or her professional trajectory as a continuous recreation of the past or as a succession of discontinuities.

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[4] The investigations used and confronted to each other by C. Dubar include:

- First field investigation was related to the ”socio-vocational inclusion programme” launched in1982 concerning unemployed young school leavers without qualifications (degrees) at Nord-Pas-de-Calais (France) (cf. C. Dubar *et al*, 1987: *L'autre jeunesse- Jeunes stagiairs sans diplôme,* Lille, Presses Universitaires de Lille).
- Second field investigation was conducted between 1984 and 1995. It concerned a CVT programme oriented towards employees' career development within two production units of thermal electricity of EDF (cf. C. Dubar and S. Engrand, 1996: *La formation en entreprise comme processus de socialisation: l'example de la production nucléaire à EDF,* in Formation Emploi, n°16, pp.37-47).
- Third field investigation which was completed during the period 1986-89, concerned CVT policies and practice within ”innovating” firms in terms of new modes of labour organisation, training and human resources management (cf. M. Bel, C. Dubar and P. Méhaut, 1986: *Les innovations en matière de formation,* in Actualité de la Formation Permanente, n°26, pp.66-84).

The "relational transaction" concerns the individual's relational interactivity with the members of "a given space of identification" structured by a set of rules and ethics.

Both transactions are heterogeneous and necessarily interrelated. They are heterogeneous due to the different nature of their dimensions. As a "subjective" and time-dependent dimension, the biographical transaction brings into play the continuity/discontinuity aspects of the individual's socio-professional trajectory and sense of belonging/commitment. By contrast, the relational aspect of the transaction triggers off, as an "objective" space dimension, the process of recognition/non-recognition. The "positions" claimed by the two types of transactions are interrelated in the sense that through interactivity (negotiation, adjustment and compromise), the outcome of each type of transaction is dependent on that of the other, i.e. the individual's success in his or her socio-professional trajectory is partly determined by the judgement of the others (the members of the space of identification) who generally base their judgement on the manner in which the individual makes use of his or her biographical capacities.

Then in terms of this double transaction model and by a synthetic reinterpretation of the results obtained through the three empirical investigation referred to above, C. Dubar identified four forms of vocational identities basically similar to those identified earlier by R. Sainsaulieu but under different names (cf. table 6):

- A biographical transaction founded on continuity (within and between generations) allows employees (young and adults) to construct their own vocational trajectories according to the mode of continuous progression. When their claim for progression is recognised within the organisation and if the relational transaction with the employer and/or the hierarchical authority is favourable, we can speak of the existence of a ***"corporate identity"*** as a principal space of socio-professional identification. It is *equivalent to Sainsaulieu's "negotiators' identity"*. The individuals concerned (employees, technicians and executives) consider themselves as members of the organisation and can easily adapt to its new policies of human resource management (based on flexibility and mobility). But, when the desired stability or progression in a given speciality or a vocation does not gain any favourable recognition, the identity formed will be a ***"categorical identity"*** as a socio-professional space of reference for individuals who are forced to identify themselves with a vocational category at odds with the dominant mode of human resource management. As the biographical and relational transactions are not positively coinciding in this type of identities, the individuals' vocational identification is blocked. This is why it is alternatively called the "***blockage identity***". It corresponds to the case of *Sainsaulieu's declining "communities" or "fusion"-based model of identity.*

- A biographical transaction based on a succession of intra and intergenerational discontinuities forces a certain category of employees to try to construct their vocational trajectories without referential sense of belonging (to a particular profession and/or institution). If they succeed in getting recognition for their formal qualifications (degrees) and/or creating useful professional links, they form a ***"network identity"*** (identité de réseau) as means for further qualifications and socio-professional promotion. It *corresponds to Sainsaulieu's "identity of affinities" and its development to the "model of mobility"*. By contrast, for non-qualified individuals (i.e. without degrees) and/or professional links, job instability and the threat of marginalisation and exclusion are becoming increasingly high due to unfavourable changes in the mode of human resource management and labour market functioning. They are forced in the end to identify themselves with a socially undervalued non-professional sphere. In this case where the biographical transaction is continuously structured in discontinuities, reinforced by the persistence of negative relational transactions, the individuals are progressively pushed to internalise the ***"identity of exclusion"*** called alternatively by Dubar ***"outside work identity"***, which practically *corresponds to Sainsaulieu's "identity of retreat".*

Table 6: ***Forms of vocational identifies according to Dubar's double transaction model***

Forms of identities		**Relational "transaction"**	
		Recognition	***Non-recognition***
Biographical "transaction"	***Continuity***	**Corporate identity** ***(Promotional identity)*** *Equivalenet to Sainsaulieu's "negotiators" or "entrepreneurial" model of identity.* - Diversity of training and employment strategies (16-20 years old); - Active and adapted employees; - Internal promotion (within innovating organisations)	**Categorical identity** ***(Blockage identity)*** *Equivalent to Sainsaulieu's "fusion" or community model of identity)* - Instrumentalisation of work (16-20 years old)); - Passive but adapted employees; - Blockage (within innovating organisations)
	Discontinuity	**Network identity** ***(Identity of independence)*** *Equivalent to Sanisaulieu's identity of "affinities and mobility".* - Certification to start with (16-20 years old) - Active but non adapted employees; - External mobility (within innovating organisations)	**Outside work identity** ***(Identity of exclusion)*** *Equivalent to Sainsaulieu's identity of "retreat".* - No professional future (16-20 years old) - Passive and non-adapted employees; - Threat of exclusion (within innovating organisations)

Moreover, in the context of the dynamics of identity transformation during the last three decades, CVT has been used as an instrumental means of *differentiation*, *confirmation*, *preservation*, *recuperation* and *flexibility* (cf. J.-M. Barbier, 1996):

- ***Differentiation*** for individuals who already possess a positive image of themselves and are determined to continue improving their socio-professional situation by personal investment through CVT.

- ***Confirmation*** concerns individuals who are looking for social recognition and legitimatisation of their socio-professional itineraries.

- ***Preservation*** for employees who feel threatened by the risk of unemployment or and exclusion and use CVT as means of defence to conserve their existing jobs and status.

- ***Recuperation*** for individuals who are undervalued and/or marginalised in their socio-professional life, and feel that they need to forge a new identity image through CVT.

- ***Flexibility*** concerns individuals who use CVT as means of access to new professional opportunities.

CONCLUSION

On the basis of the analysis conducted above in this paper concerning the performance of CVT system during the last three decades, it is important to underline the following interdependent concluding points:

First, working individuals' access to socio-professional promotion through CVT induced mobility has, on the whole, undergone an important decline since its introduction in the early 70s. This is basically due to :

- The direct effect of an overall drop in the CVT induced *promotional mobility* which is well known for its strong positive link with socio-*professional promotion* (such as access to a higher socio-professional status, including its implications for improved working conditions and increased responsibility, qualifications and wages). This is basically the result of an accentuated drop of the hierarchical upward mobility induced, especially by the employer-directed CVT. This decline seems to affect more qualified and highly qualified CVT beneficiaries;
- The counter-effect of a relative increase in CVT induced horizontal (known for its low link with socio-professional promotion) during the same period mainly due to the important contribution of the employee-self-initiated and directed CVT. This tendency coincides well with the general move towards the development of more flat organisational structures within the firms.

Secondly, the effect of the concomitant change in the dynamics of work and CVT related identity formation processes, leading to the development, during the same period, of a variety atomised vocational identities, which can be grouped into two basic categories:

- Identities with low level of interactivity with work and related CVT, which have undergone the following basic transformations:
  - The erosion of the traditional "fusion" type of vocational identity, has led to the emergence of small scattered communities in which working individuals' career trajectories are discontinuous or blocked. (i.e. the development of blockage identities);
  - The transformation of the late 60s model of identities (the traditional "retreat" model), which was allowing workers to combine voluntarily work with other types of life (family life, for instance), into a variety of more exclusion-based identities
- Identities characterised by their high level of interactivity with work and their ability to adapt and internalise change. They are basically represented by the following models:
  - The "affinities-mobility" model of vocational identity, in which individuals are more able to adapt their projects to the new flexibility-based mode of human resource management (within organisations with highly reduced pyramidal organisational structures and less promotional opportunities). Within this kind of models, individuals are more inclined to use the CVT (especially SD-CVT) to promote their functional flexibility and mobility through the development of well diversified portfolios of competencies;
  - The "negotiators-entrepreneurial" model of vocational identities whose members possess and develop the competencies which allow them to invest into change and be at the same time well integrated within the organisation. Individuals' access to socio-professional through CVT induced promotional mobility is usually high within this type of vocational identity.

Thirdly, the performance of the CVT system in terms of its contribution to its beneficiaries socio-professional promotion, can still be improved through adapting it to take into consideration the new contextual dimensions of change, especially those related to the dynamics of identity formation processes, by:

- Integrating the two components of the CVT system, especially in terms of complementarity-based learning path fluidity, which takes into consideration the dominant characteristics specific to each component. The SD-CVT sub-system is generally characterised by its contribution to the development of the individuals' transversal competencies and functional flexibility/mobility. As for ED-CVT sub-system, it is basically limited to the adaptation of employees to punctual and specific occupational competencies.(cf. M Dif, 1999a);
- Promoting CVT induced functional flexibility/mobility through the flexibilisation of competencies, learning processes and pathways (cf. Dif, 1999a):
  - *Competency flexibility* is usually obtained through the development of transversal competencies (i.e. core or key skills), which allow the individual to perform a wide range of work roles and respond easily to any new work organisation. They have the advantage of empowering individuals in shaping technology, managing their own learning and transferring acquired skills to work complex situations. They are tacitly a combination of four interrelated dimensions: methodological, social, technical, and behavioural competencies
  - *Curricular flexibility* (or transversal modularization) is considered as one of the major instruments used to implement and develop transversal competencies. Its flexibilisation has to be:
    - Over time, in order to promote CVT system capacity to update its curricular contents in response to changing skills needs;
    - Across individuals by tailoring CVT programmes to take into consideration individual choices and meet specific needs of a certain category of learners, especially those who are in disadvantaged situations;
    - Over space in order to develop CVT capacity to adapt curricular contents to local labour market and local circumstances.
  - *Learning-path/process flexibility*: *Learning path flexibility* refers to the development of fluid learning tracks through the promotion of an equal chance for access to CVT and smother transferability between different levels and routes of learning. The latter has the advantage of contributing to the integration within and between CVT system initial education (general and vocational). As for the *process flexibility*, it concerns the development of CVT ability to adapt its provision to meet the learning needs of individuals and groups by using different delivery methods and techniques. This has to be:
    - At different times to take into consideration the learners' availability and their particular social and working conditions;
    - Within different institutions and bodies in order to promote collaboration between different CVT providers and employers.
- Creating a real mix between learning and work via the promotion of alternating vocational training, apprenticeship and continuing accreditation of work-based learning;
- Establishing more comprehensive and active socio-vocational inclusion programmes, based on an effective accompaniment and continuing follow up, especially for those individuals with involuntary low interactivity with work.

REFERENCES

AGACHE, CH. (1993): *Les identités professionnelles et leur transformation: Le cas de la sidérurgie*, Editions L'Hartmattan, Paris

BARBIER, J.-M. (1996): *De l'usage de la notion d'identité en recherche, notamment dans le domaine de la formation,* In Education Permanente, N° Spécial 128: « Formation et dynamiques identitaires », pp.11-26.

BERTON, F. & PODEVIN, G. (1991): *Vingt ans de formation professionnelle continue: de la promotion sociale à la gestion de l'emploi,* In Formation Emploi, N° 34, avril-juin, pp. 14-30.

DIF, M. (1998): *Flexibilité du travail et ses implications pour l'emploi: réflexions sur les modèles émergents,* In Economies et Sociétés, Economie du travail, Série A.B., N° 20, pp. 231-246.

DIF, M. (1999a) : *On the performance of self-directed learning within the French continuing vocational training system,* Paper presented at the European Conference on: "Lifelong Learning-Inside and Outside Schools", 25-27 February 1999, University of Bremen (Germany).

DIF, M. (1999b): *Role of accrediting work-based prior learning within the French VET system,* Paper presented at TSER FORUM NETWORK on "Identities in VET", Vienna (Austria), 24-27 June 1999.

DIF, M. (1999c): *Contribution of "inclusion" to active citizenship: Examples of effective practice within the French VET system*, Paper presented at ECER 99 Conference, 22-25 September 1999, Lahti, Finland.

DIF, M., (1999d) : "*Role of employee-self directed learning versus employer-directed learning within a learning organisation in a French context*", a paper presented at TSER Forum "Learning Organisations", Evora, Portugal, 25-28 November 1999.

DIF, M., (2000): "*On the development of lifelong learning concept in a French context*", in "Lifelong Learning in Europe" Journal, Vol. V, Issue 1/2000, Finland, pp.23-30.

DIF, M., (2000): "*On the emerging models of labour flexibility within the French continuing vocational training institutions: Implications for inclusions, skill and identity formation*", a paper presented at TSER Forum on "Identities in VET and Labour Market", Nant Gwrthyrn, Wales, 29th June – 2nd July 2000.

DORTIER, J.-F. (1994): *L'individu dispersé et ses identité multiples,* In Siences Humaines, N° 37, Mars, pp. 18-21.

DUBAR, C. (1992) : *Formes identitaires et socialisation professionnelle,* In Revue Française de Sociologie, N° 33, pp. 505-529.

DUBAR, C. (1994) : *Le sens du travail : Les quatre formes d'appartenance professionnelle,* In Sciences Humaines N° 37, mars, pp.22-25.

DUBAR, C. (1996) : *La socialisation : Construction des identités sociales et professionnelles,* Armand Colin/Masson, (2ème Ed.), Paris.

DUBAR, C. & ENGRAND, S. (1991) : *Formation continue et dynamique des identité professionnelles,* In Formation Emploi N° 34 , Numéro spécial : « la Formation Professionnelle Continue (1971-1991) », avril-juin.

DUBAR, C. & PODEVIN, G. (1990): *Formation et promotion en France depuis vingt ans,* In CEREQ BREF, N° 59, novembre.

DUBAR, C. & TRIPIER, P. (1998) : *Sociologie des professions*, Armand Colin, Paris.

FRANFORT, I., OSTY, F., SAINSAULIEU, R. & UHALDE, M. (1995): *Les mondes sociaux de l'entreprise*, Desclée de Brouwer, Paris.

MICHELET, V. (1998): *Le financement de la formation et de l'enseignement professionnels en France,* Document CEDEFOP, septembre 1998, Thessalonique (Grèce).

MOSCOVICI, S. (1998): *Comment voit-on le monde? Représentations sociales et réalités,* In Sciences Humaines – Hors Série, N° 21, juin / juillet, pp.11-13.

PIOTET, F. & SAISAULIEU, R. (1994): *Méthodes pour une sociologie de l'entreprise*, Presse sde la Fondation Nationale des Sciences Politiques, Paris.

PODEVIN, G. (1998) : *De la formation à la promotion : un chemin de moins en moins certain, soumis aux contraintes de l'entreprise*, in B. Clasquin and H. Lhotel (Editors) : « La formation professionnelles continue – Tendances et perspective », Documents séminaires (Céreq), N° 138, septembre 1998, Nancy, pp.37-52.

SAISAULIEU, R. (1977): *L'identité au travail,* Presse de la Fondation Nationale des Sciences Politiques (1st ed.), Paris.

SAISAULIEU, R. (1985): *L'identité au travail,* Presse de la Fondation Nationale des Sciences Politiques (2nd ed.), Paris.

SAISAULIEU, R. (1996): *L'identité au travail,* Presse de la Fondation Nationale des Sciences Politiques (3rd ed.), Paris.

SAISAULIEU, R. (1997): *Sociologie de l'entreprise – Organisation, culture et développement,* Presses de Politiques et Dalloz (2nd ed.), Paris.

SAISAULIEU, R. (1998): *La construction des identités au travail*, In Sciences Humaines – Hors Série, N° 20, mars/avril, pp.40-43.

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Expectancies and realities – evaluations and research on engineering students' experiences of their first semesters.

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AIMS

The aim of this paper was threeefold:

1. To present the background and the first results of a longitudinal study about students' expectancies and preceived reality during the first year of a study-programme in physics and electro technics
2. To present and discuss how our results were met by faculty.
3. To discuss the role of the researchers in a longitudinal action oriented project.

BACKGROUND

The number of students in higher education in Sweden have increased with almost 70% during the last ten years, due to a governmental ambition that 50% of a cohort shall enter higher education. Efforts to attract young people to science and technology have high priority. This is a big challenge for Universities to recruit and keep their students in competition with other national and international Universities and to attract them to science and technology in competition with other subjects as media, social and cultural sciences. In Sweden, as in other European countries, the cohorts of young people are decreasing from the beginning of 2000 and there is a decrease in applications for science and technology. The Y-programme (programme of technical physics and electrotechnics) at the University of Linköping market their programme as "The most powerful engeneering programme in Sweden" and presumtive students are invited to the "Toughest journey in Sweden". However, the management of the programme had to face that about 20% of a class dropped out and that many students failed their examinations. The old saying that some wastage is the price you have to pay to keep up the reputation is not a teenable excuse any longer and there is an awareness that the challenge for the future is to recruit students with unconventional study backgrounds and to keep the students and motivate them to stay until they have graduated.

The framings of the first year of the study programme

From the start the students in one class of 180 are assigned to six study groups of about 30 students. One study year consists of two semesters. The first semester starts in the middle of August and ends at the beginning of January. The second semester starts in January and ends in June. During the first two weeks of the study programme, students meet in these smaller study groups for lectures but also for information from "class masters (or mistresses)", i.e. students from higher grades. The first course of the first semester is in mathematics. Lectures are given in lagre groups (of 180) as well as in smaller study groups (of 30). On an average students' time is scheduled from 8 a.m to 5 p.m. The semester is divided into study periods and examination periods.

DESIGN

The study was designed to deal with students' *expectancies* of their study programme, social situation and future work role, and their *experiences* of their first year in the study programme. A reference group, made up by the programme manager, administrator and study councellor as well as of teachers and students, met regularly to scrutinize questionnaries and discuss the results. A first written report was presented spring 1999, where the results from Q1, Q2 and the first interviews were presented. A final report was presented in January 2000.

Questionnaries

Three questionnaries (Q1, Q2 and Q3) were given to the students at the beginning of the first semester (Q1), at the beginning of the second semester (Q2) and at the beginning of the second year in the study programme (Q3).

In Q1 the focus was on students' study background, motives for applying to the programme, experiences of study-related health problems in high school and expectancies of workload, cooperation with teachers and co-students and identification with the programme.

In Q2 the focus was on students' experiences of their *first semester*. There were questions about their self-evaluations of their study results, perceived workload, perceived study related health problems, thoughts about leaving the programme and feelings related to their study situation.

In Q3 the focus was much the same as in Q2, but with a focus on students' experiences of *the whole first year*.
Q1 was distributed and collected by the researchers when the students met in the study groups with their "class masters". The response-rate therefore was high, 98%. Q2 and Q3 were distributed and collected when the students had high frequented large group lectures. The response-rate was about 80%.

To guarantee students' integrity they were asked to construct a personal code and use that on all three questionnaries. The researchers' additional codings were study group, gender, and age.

Interviews

Twelve students were interviewed, five female and seven male. They were chosen by the researchers from the class lists of every study group. This was requested by the reference group. The same students were interviewed twice, at the beginning of the first semester and at the beginning of the second semester. No student refused to participate. The interviewes lasted from one to two hours and were taped an transcribed. The interviewers also notated their personal impressions and reflections during the interview.

The interviews were semi structured. The interview guide was constructed to follow up the questionnaires but to leave open for the Y-programme students to bring to the fore issues that came to their mind during the interview.

At the beginning of the second semester ten "drop outs" could be identified and seven of them could be reached and were interviewed per telephone.

The expansion of the study

In August 2000 the study was expanded and the design was now to be applied to three classes, 1998, 1999 and 2000. We will also construct further questionaries, one for each of the 2nd, 3rd, 4th and 5th year and a final questionnarie to be given to the students one year after graduation. In all there will be seven questionnaries given to each class. We will also interview the same students once a year and after graduation. Thus there will be ten life stories from each class. From the spring 2001 we will also include interviews with teachers in the programme.

The purpose of the expansion of the study was to evaluate the reformning of the programme that is going on in cooperation with other engeneering programmes in Linköping as well as Chalmers in Gothenburg and MIT in the USA. Being from the start a limited survey- and interview study it now has developed into an action oriented longitudinal study.

RESULTS

The class of 1998

1998 1470 students (240 females and 1230 males) applied for the programme. Of those 295 (40 females/240 males) had the programme as their first hand choice. 187 students were accepted, 37 females and 150 males (20% females). The average age was 20 years. The agespan was wider in the female group (18-23) compared to the male (18-31).

Expectancies

78% of the students had the Y-programme as their first hand choice and the main motive was that ”they loved” mathematics and physics. 34% had experienced study related health problems in high shool. There was a significant difference between males and females since 64% of the female students had those experiences compared to 27% of the male students.

At start the students had *positive expectations of cooperation* with teachers and other students in the programme and they assumed that the teaching and the research held high standards. They *felt proud to have been accepted* to this high status programme and they expected *heavy work load* and were prepared to work hard and make sacrifices in order to fulfil their studies. Those students (78%) that had the programme as their first hand choice *had more positive expectations* and reported *less* study related stress in high school. The students expected to have to work 50 hours/week on an average.

Students' experiences of their study results and of work load after the first semester

After the first semester (Q2) 32% of the students reported ”good” study results, 42% ”acceptable” and 26% ”weak” or ”bad”. The results after the first year (Q3) are in line with those results but the polarization was greater, 37% ”good”; 29% ”acceptable” and 34% ”weak” or ”bad”. After the first year (Q3) only 22% had passed *all* their examinations.

Female students experienced greater difficulties (Q2 and Q3), reporting more failed examinations, lower grades and less satisfaction with their results, compared to male students. In the interviews the students commented on the high speed in lectures and the difficult first course in mathematics. Their explanations for their difficulties were that their knowledge base from high school was not satisfactory, but also that many teachers seemed unwilling to adjust their teaching to the students level of knowledge. The students also commented on the teachers ignorance of the students need to ask questions and to apply their knowledge to practical examples. The students wanted more student centered teaching methods.

Female students experienced more difficulties with the (overall male) teachers attitudes to the students.

After the first semester (Q2) the students reported that they worked, on an average, 38 hours/week and after the first year (Q3) 41 hours. These are estimations made from the time dairies that the students were asked to write one week in Octobre and from their estimation of their work load the week before they filled in the questionnarie. The variation was substantial. In table X the answers have been cathegorized in "short", "medium" and "long" weeks in realtion to the average.

Table 1.. Estimated average work hour/week.(Q1 measures expected work load)

	Average	Short		Medium		Long	
Q 1	49.8	39.6	(20.9%)	50.0	(58.8%)	60.0	(20.3%)
Q 2	38.5	27.2	(23.7%)	36.6	(47.4%)	48.1	(28.9%)
Q 3	41.0	28.2	(32.2%)	40.9	(27.1%)	51.2	(40.7%)

Students' *expectations* were that they would have to work harder (more hours/week) than they actually did. Students reporting "long" weeks were satisfied with their study results but felt the work load "overwhelming" and the price they paid was that they had to sacrifie all social life. Those reporting "short" weeks were less satisfied with their results but experienced work-load as acceptable.

In the interviews we identified three prototype students regarding their attitudes to their studies.

1. The first cathegory were those with an overall attitude that "one has to make sacrifices" They reported that they were working 40-60 hours/week, had lost contact with family and old friends and did not have time to get to know new friends. In spite of the hard work they enjoyed their studies.

2. The second category were the regretful, who realized that "one should have put more effort in the studies". They were quite satisfied with their results but realized that they could have done much better. But they gave some priority to social events and social relations.

3. The third cathegory were the "cool" ones. They did not have to work very hard. They only attended lectures they found interesting and did their home work. They had plenty of time for hobbies, sports and social events and social relations. They never worked during week-ends.

These results indicated that students made a difference between actual work hours/week and perceived work load. Students who reported "short" weeks reported *higher* work load than those with "long" weeks. From the interviews we could see that heavy work load was experienced when students felt that the speed was so high that they constantly felt that they were not "in phase" with the lectures and when they could not stop thinking about that, even if they tried to relax and do other things. 25% of the students experienced high workload and 25% experienced low workload. 55% of those experiencing high workload and 25% of those experiencing low workload sometimes or often had thoughts of droping out.

Students mental and physical health related to their study situation

The students were asked to give their answers to the statement "I have had the following problems mainly or partly related to my study situation". They had to decide on eleven predefined problems on a 5 point scale from "none" to "severe".

Table 2. Distribution of estimated problems for men and women. Q 2 & Q3.

Problems	**Men**		**Feamles**	
Percentage reporting some/severe problems	Q3	Q2	Q3	Q2
Depression	38.5	34.4	72.7	54.2
Feelings of inadequacies	49.5	48.9	81.8	83.3
Self-doubts	40.7	46.7	77.3	75.0
Lack of concentration	36.3	43.5	68.2	70.8
Problems with muscels/joints	4.4	10.1	13.6	12.5
Pain in neck and/or back	18.5	33.3	36.4	33.3
Feeling restless	40.7	38.9	40.9	45.8
Headace	13.1	14.5	42.9	58.3
Pain in the stomach	9.9	12.3	50.0	30.4
Infections	2.2	5.6	18.1	8.3
Sleeping problems	36.2	43.3	45.5	58.3
Average	26.4	30.1	49.8	48.2

The results indicated a relation ***between health, study results and experience of work load***. Female students worked harder but did not reach grades equal to male students. Female students also experienced heavier workload and more physical and psychological problems and they had more frequent thoughts of dropping out than male students

Significantly more women reported (Q2) that

- Their study results were "weak" or "bad" (54 % females/ 17 % males).
- They had more than one failed examination (50 % females/ 12 % males).

- They (on a question about their grades on a scale from failure to excellent) reported most "failures" (52% females/10%)
- They were dissatisfied with their studies (62 % males och 34 % females).

Experiences of cooperation with teachers and co students

The cooperation with the other students were mostly positive but after the first semester the cohesivness in the study group declined and subgroups emerged. In the interviews the students commented that competition had emerged between the sub groups. Male and female students defined "co-operation" differently. For male students it could mean sitting next to another student doing arithmetics. For female students co-operation meant working together in a small group where they could ask "silly" questions and get support when they felt stupid and did not understand and where they could get feed-back on their work. Female students described the imprtance of belonging to a "gang of birds".

Students' experiences of co-operation with their teachers were ambivalent. Junior teachers were found to be more co-operative than senior teachers, but on the whole the students did not find it worth while to try to establish any kind of relationship with the teachers. Senior teachers were experienced as mystified elevated oracles who entered, gave their lectures and left. Female students commented on the language of the teachers, which they often found incomprehensible and complicated. On the other hand they suspected that this was a strategy to keep up the reputation of a high status programme and to socialize the students into higher education.

The student did not believe that they could influence the design of the study programme, in spite of formal evaluations in every course. Though they had some confidence that their student representatives in the board of the programme could have som influence most students felt power-less.

Identification with the Y-programme

Most students were very proud to be accepted in the programme. They believed that other people held the opinion that Y-students were "an elit-group in mathematics" and that they were looked upon with envy and pride. But they also said that Y-students were considered to be asocial goofies. This reputation made them hesitate to tell other students which programme they attended, when they were out on pubs and parties. One female student, successful in her studies, said that in order not to scare the life out of boys she used to say that she was not very successful.

The strong identification with the Y-programme and the heavy work-load produced feelings of isolation from other study programmes and people with different interests. In spite of that strong identification many students considered the option of dropping out of the programme during the first year. As we showed at the beginning of this paper, 23% of the students did not register for the second year.

Table 3. Percentage of students considering to drop the studies

	Often	Sometimes	Never
Men	5.5	25.5	69.0
Women	31.8	31.8	36.4

Students who often thought about leaving had different experiences compared to those who never thought about leaving. They experienced:

- Weak study results
- The work-load as overwhelming
- Little time for "life" outside the studycontext
- More dissatisfaction with their study results
- Stress related to the study situation
- Less feelings of cohesion and identification with the programme

B. REACTIONS TO THE FIRST EVALUATION REPORT

When the project started, the reference group was involved in commenting on the drafts of the construction of questionnaries. Some teachers held the opinion that their expectations of the study merely was to have facts to be confirmed. Tese "facts" were that students did not learn enough mathematics at high school and that they did not work hard enough (at least 40 hours/week). When we presented our first report (Q1 and Q2) showing that most students did work hard, and that they in fact experienced a lot of stress and agony and critizised the pedagogy of the teachers, the teachers in the reference group felt attacked. They turned their fury on the researchers/evaluaters and accused us for beeing hostile to technology and technologist and there was a suspicion that the results were biased. The reason for that was not only the content of the report, but also the written form. We had a lot of citations from students, and the teachers found that unprofessional, as we did not report in quantitative data how many students that held those opinions. There was a clash between scientific paradigms as well as a feeling of assymetri in power relations.

The reference-group met several times to discuss the results and the group decided to hold a low profile until the final report came, by the end of December 1999. However, as a result of the first report the teachers did start a discussion of reforming the first course, the mathematics, that had been the target of the students frustration. The researchers were then asked to carry through the same study for the class of 1999 with the aim to see if the reforms led to any changes in students attitudes. The final report about the first year of the class of 1998 was still a tough reading for the reference group and they decided not to make it too public.

The first report from the class of 1999 (Q1, Q3 and interviews) showed a small change in students attitudes. This was a turning point for the reference group. The teachers interpreted the result as a credit to their reform work and the students welcomed a more positive athmosphere among students as well as between teachers and students. The reform work and the project had now also attracted attention from other engeneering programmes at the University as well as from the board of the department of Technology.

Further in the spring of 2000 the researchers were invited to discuss an expansion of the project, as described at the beginning of this paper. The expectations of the researchers, to carry out a one year evaluation project the reality now shifted to being involved in an action oriented longitudinal study with a focus on a thorough reformation of the programme.

To sum up:
Now, we would like to sum up our conclusions concerning

A. The first results:

- We think our design, combining surveys and repeated interviews is well suited to do justice to the students' expectancies and experiences.
- The study revealed a high percentage of actual and presumtive drop-outs during the first year. 23% did not register for the second year. 31% of male and 63% of female students were considering (often or sometimes) to quit during the first year.
- The main reasons for the students experiences of failure and study related health problems were heavy work load; inability to keep up with the speed; self-doubts and negative attitudes from teachers.
- Students made a difference between actual work hours/week and perceived work load.
- Satisfactory results – reported by about one-third of the students were achieved at a high price for many, for example, social isolation (mostly male) or psycho-somatic (mostly female students) symptoms.

- Those students whose expactancies were to be involved in a very trying study-situation were best prepared to overcome failures and adversities.
- Teachers anticipations that students were porly prepared for studies, being lazy or occupied with divergent interests, were not much supported.
- Female students had explicit expectations and demands on a satisfying teaching-situation, for example teachers being friendly and supervising them and fellow students' sympathetic support during periods of self-doubt and failures.
- In spite of the fact that many studies have been made, in Sweden and in other countries, that point to the same results as our studie, no thorough educational reform had been made previously. Our interpretation was that this was due to culture, a strong beleif that a tough climate is necessary to keep up the reputation and an inability or maybe unwillingness in faculty to face pedagogical inadequacies and instead put the blame entirely on the student for their failure

B. The reactions to the first report

- Faculty had difficulties to face the results that did not confirm their anticipations.
- The fear of the results being made public contributed to their hostile feelings to the researchers from a scientific paradigm different from theirs.
- The publicity of the report and the dicussions in the reference group contributed to the reforming of the first course.
- The researchers were invited to carry out another study.

From these conclusions we finally want to discuss the role of the researchers in a study that is expected to be a one year evaluative study to a longitudinal action oriented project.

C THE ROLE OF THE RESEARCHERS IN ACTION ORIENTED APPROACHES.

The myth that knowledge is a matter of "truth" and that the researcher is an objective out sider, collecting data and presenting results is definitely contested in this study. Many intrest groups wich to claim that their knowledge and their interpretations are true, students, faculty, researchers and stake holders outside of the University. Action oriented approaches have developed out of serious critique of orthodox, positivist research. Tandon (1982) highlights four points of critique:
1. The absolutist critique – pure knowledge generation can not be the aim of social (or educational) research

2. The purist critique – strict separation between researcher and subject leaves all control of the research in the hands of the researcher.
3. The rationalist critique – an over emphasis on thinking as the means of knowing neglects feeling and acting
4. The elite critique – dominant research paradigms enhance economic, social and intellectual advantage of dominant groups.

These points will be the frame of reference for an overview of som action oriented approaches with a focus on their implications for the role of the researcher.

Reason (1994) distinguishes between threee different approaches to participative inquiry, co-operative inquiry, participative action research (PAR) and action inquiry.
Co-operative inquiry has its roots in humanistic psyhology with its focus on the study of self-determining persons. People are regarded the authors of their own actions. Thus all those involved int the resarch are both co-researchers and co-subjects (participating in the activity being researched). The researcher is one subject among other subjects.
In *participative action research* the political aspect of knowledge and knowledge production is emphasised (Fals-Borda & Rahman, 1991; Alvesson & Deetz, 2000). Research is based on the lived experiences of people and the aim of the research is two –fold:
a) to produce knowledge and action directly useful to a group of people
b) to empower people through the process of constructing and using their own knowledge.
The role of the researcher is to make people aware of the different knowledge claims that exists and relate that to communication and power relations.
Action inquiry is a form of inquiry into practice. The aim of the research is the development of effective action that may contribute to the transformation of organisations to greater effectiveness and greater justice (Torbert, 1991). Central to the perspective is to identifie the theories that actors use to guide their behaviour. A distinction is made between espoused theories and theories-in-use (Argyris & Shön, 1978; Schön, 1983; Argyris, Putnam & Smith, 1985). In order to practice action inquiry Torbert (1991) argues that the researcher requires knowledge from four territories of human experience:
a) Knowledge about the systems own purposes
b) Knowledge about it´s strategies
c) Knowledge of the behaviorla choices open to people in the system
d) Knowledge of the out side world.

The role of the researcher is "the spider in the web" the collector, interpretor and coordinator of information and the facilitator, making people reflect in- and/or on their actions.

In all three approaches the ontological position is close to the one expressed by Freire (1982)

> "...the concrete reality consists not only of concrete facts and physical things, but also includes the ways in which the people involved with these facts perceive them"

All three approaches unite to emphasise the fundamental importance of *experiential knowing*, that arises through participation with other people.

The three approaches place different emphase on what is to be taken as "data". Action inquiry relies heavily on formally recorded reports of conversations but also recognices other expressions of personal experience (Torbert, 1991; Argyris & Schön 1974). Co-operative inquiry relies mainly on verbal reports of experience but also on the use of metaphors and narratives (Cunnigham, 1984). PAR embraces a whole range of expressions from large scale surveys to dairys and drawings.

In our project we find the action inquiry approach most in line with our aims and prerequsites, but we have a heavier reliance on the political issues concerning the construction and production of knowledge.

From hostile villains to magic heroes

The first incidence that made us start reflecting on our roles as researchers were when we experienced the turning point from being looked upon as hostile villains we were considered magic heroes. Something had happened in the programme, in the climate, that made the teachers feel more engaged in their teaching and perceiving the students more co-operative and ambitious. The class of 1999 obvioulsy had experiences that were different from the class of 1998.

From painting the picture all black there was a tendency to paint it all white. As researchers we had to play the devil's advocate and talk about the Hawthorne effect. In both classes, the project implied that the students situation was acknowledged, high lighted and discussed. When the class of 1998 started they were informed of the difficulties facing the programme, while the class of 1999 were informed of the results of an ongoing project and of the reforms that had taken place, which they could benefit of.

Expectancy and reality – parallell processes in a project

Working in a project with the aim of studying the student's expectancies and perceptions of reality raises the question of parallell processes at different levels in the project. We have discussed the student level where self-reflexion and public attention must be considered in the interpreation of the results. We have also discussed the faculty level where the same processes must be considered. We realize that the same processes are at work in the project group of researchers and therefore critical questions must be put at every stage in the research process.

What in the results can be the effects of the researchers actions?
Why do the actions of different interest groups (students, teachers, researchers etc) produce the feelings and reactions they do?
In whose interest is knowledge produced and acknowledged?

References:

Tandon, R. (1982). A critique of monopolistic research. In B. Hall, A. Gillette & R. Tandon (Eds*). Creating knowledge: A monopoly? Participatory research in development*. New Delhi: Society for participatory research in Asia.

Reason, P. (1994). *Participation in human inquiry*. London: Sage.

Alvesson, M. & Deetz, S. (2000). *Kritisk samhällsvetenskaplig metod*. Lund: Studentlitteratur.

Fals-Borda, O. & Rahman, M.A. (Eds). (1991). *Action and knowledge. Breaking the monopoly with participatory action research*. New York: Intermediate Technology/Apex.

Argyris, C. & Schön, D. (1978). *Organizational learning*. Reading, M.A:Addison-Wesley.

Argyris, C.; Putnam, R. & Smith, M.c. (1985*). Action science: Concepts, methods and skills for research and intervention*. San Fransisco: Jossey-Bass.

Schön, D. (1983). The reflective practitioner: *How professionals think in action*. New York: Basic Books.

Torbert, W.R. (1991*). The power of balance: Transforming self, society and scientific inquiry*. Newbury Park, CA: Sage.

Argyris, C. & Schön, D. (1974). *Theory in practice. Increasing professional effectiveness*. San Fransisco: Jossey-Bass.

Cunningham, I. (1984). *Teaching styles in learner centered management development programmes*. Lancaster University: Unpublished doctoral dissertation.

THE INTERNATIONAL DIMENSION IN DUTCH VET: OUTPUTS AND IMPACT OF LEONARDO DA VINCI

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Leonardo da Vinci programme

The Leonardo da Vinci programme is the consequence and practical application of Article 127 of the Treaty of Maastricht. It is a combination of four old programmes: Petra, Eurotecnet, Force and Comett. What is new about Leonardo da Vinci is that two sectors have been brought together: secondary vocational education and higher education.

The Leonardo da Vinci programme is divided into two parts (known as strands)
Part I deals with measures to improve the vocational education systems and the vocational education provisions in the Member States (and other participating countries).
Part II concentrates on measures improving vocational education actions for the benefit of companies and employees.
Other aims are: improving the accessibility to vocational education and training, extending the possibilities for life long learning, improving the position of underprivileged groups on the labour market and combating exclusion.

The objectives are achieved through international co-operation in various activities which aim at:

1. transnational mobility of persons (mainly young people following vocational education and teachers)
2. pilot projects: development and dissemination of innovation in vocational education (Leonardo da Vinci as a 'laboratory' for European vocational education and training where the dissemination of results is just as important as its development).

Thanks to the first phase of Leonard da Vinci, over the last five years (1995-1999) 6 400 students, 420 teachers and 720 young job seekers and young workers have gained job experience abroad and 86 pilot projects were started in the Netherlands.

The Dutch contribution to the total Leonardo da Vinci budget was on average 4% per annum, varying from 3.6% in 1997 to 4.3% in 1999.

Table 1: Dutch share in Leonardo da Vinci 1995-1999

Year	Number of pilot projects, survey and analyses and mobility Strand 2	Total in Euros	Dutch share	Dutch share in %
1995	27	88,410,678	3,569,907	4.04
1996	25	112,080,536	4,458,838	3.98
1997	19	102,276,695	3,648,200	3.57
1998	18	75,780,000	2,960,610	3.91
1999	22	74,100,000	3,284,020	4.43
Total period:	***111*** ***(86 pilots and surveys and analyses and 25 mobility projects strand II)***	***452,647,909***	***17,921,575***	***3.96***

Evaluation

The EU Member States carrying out the Leonardo da Vinci programme are obliged at the end of the programmes validity (1995-1999) to draw up a report on the implementation process and the outputs and impact of the programme. The investigation into the results and impact of the Leonardo da Vinci programme in the Netherlands was conducted by the Research & Consultancy Department of the Centre for Innovation of Education and Training (CINOP).

Research questions

The main research questions are:

- What are the outputs and the impact of Leonardo da Vinci given the objectives of the programme?
- Which factors contributed to the varying degrees of outputs and impact?
- How do participants, teachers/coordinators judge the usefulness and the added value of participation in mobility activities?
- What can be learned from the experiences of the pilot and mobility projects for future international projects?

The terms *outputs* and *impact* are at the heart of these questions. *Outputs* refers to results which have been intended and achieved by the project. *Impact* refers to all effects which go beyond the immediate level of the project. An example of this is the case in which a series of modules developed for use in health care training is also used in other training courses. Often this refers to a specific body of thought (insights, approach, method) which is used in circumstances outside the scope of the project. Impact may also mean that the scope has been extended to other projects or that the market and competitive position of the organisation where the project is being carried out has been strengthened.

Finally, there can also be impact via the network of the project partnership. Through contacts within the network possibilities arise which would not otherwise exist. If foreign companies act as partners in Dutch projects, this can offer opportunities that students may either be able to follow a training period or part of their studies abroad.

Impact may appear at various levels: within one's own organisation, locally, regionally, per sector, nationally or at European level. The level of the impact of course depends on the level at which the project objectives are defined. For instance, a project whose aim is to gain European qualification for its training course will be more inclined to have an impact at European level. This impact has the greatest scope and is the most difficult to achieve.

Research design

The research has a number of sections. These sections are described below.

1. *Document analysis:*

   Out of all the authorised pilot projects and surveys and analyses with a Dutch contractor from the 1995-1999 period, the following information was entered into a database: the main aim of the project[1], the priorities that the project has to take into consideration, the activities of the project, the strand and measure, the products to be realised, an indication of the type of organisation of the contractor, and of the partners, the country or origin of the partners.

2. *Interviews with 20 project leaders of pilot projects and surveys and analyses:*

   Out of the 86 pilot projects and surveys and analyses approved of for the period 1995-1999, 20 projects were selected. Selection criteria were:

   - the variety of main contractors: educational institutions, social partners (companies, employees), regional bodies, higher education and vocational education and training institutions;
   - the variety of programme measures;
   - projects aimed at initial vocational training, continuing vocational training and lifelong learning;
   - the variety of sectors (including projects from the agricultural sector).

   To prepare the interview, an interview guideline was sent. The main points of the guideline were:

   - the project objectives, how much was achieved and factors and circumstances which influenced the level of achievement;
   - the nature of the project's impact, its form, the level on which the impact was applied (in one's own organisation, locally, regionally, nationally or at European level) and its status (whether or not achieved, still in the discussion stage, or as a point of particular policy interest, etc.). Increase in internationalisation, increase in scope or improvement of

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[1] This refers to the objectives of the period 1996 to 1999. During this period, projects were only allowed to have one (main) objective, based on the experience that in 1995 several objectives could be taken into consideration and this possibility was often resorted to, with the result that it was more difficult to ascertain what the main objective of a project actually was.

(market) position of the institution, the company or the branch/sector also comes under impact;

- the learning experience of the project for the continuation of internationalisation activities

Interviews were held with the project leaders as well as with their managers on the assumption that the managers also have in role in achieving impact. Interviews were also held with end users of project products to ascertain the impact at user level.

Telephone interviews were held with eleven *managers* of project leaders. In seven cases, the project leaders themselves were the managers or the responsibility for internationalisation was delegated to them[2]. The following questions were asked in the telephone interviews:

- To what extent was the management of your organisation involved in the Leonardo da Vinci project?
- How important is internationalisation for the organisation and what role does the Leonardo da Vinci project play in this respect?
- To what extent is internationalisation linked to individuals and what organisational provisions are or were provided to deal with any risks connected to this?

A list with the names and telephone numbers of *users* of the products of the project (e.g. manuals, modules, websites, etc.) was requested from the project leaders of completed projects. One user was approached for every project with a clearly definable product. Seven users were asked the following questions by phone:

- How did the user find out about the existence of the product?
- Is the product used and if so, how?
- What is the user's opinion about the product and how useful is it?

3. *Interviews with experts and national actors:*

Interviews (by telephone) were carried out with internationalisation experts of the Ministry of Education, Culture and Sciences and the Ministry of Agriculture, Nature Management and Fisheries, social partners, organised interest groups (Bve Raad, Colo, AOC Raad, HBO Raad and VSNU) and the NCU (National Co-ordination Unit). In total 14 people were interviewed. The following questions were put to the interviewees:

- What contribution did Leonardo da Vinci make from the educational point of view (quality, ICT, objective groups)?
- Did the programme result in an improvement in the relationship between education and the labour market, have new job profiles developed, have new or different co-operative relationships, platforms and regional actors appeared?
- Has Leonardo da Vinci contributed to the strengthening of the European dimension?
- Has Leonardo da Vinci encouraged transnational mobility?
- Did dissemination of the results and good practices lead to added value?

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[2] In two cases repeated and urgent requests to contact us were ignored

- Is there a clear and positive image of Leonardo da Vinci?

Lastly, what, based on the experience of Leonardo da Vinci I, can be learned which may be useful for Leonardo da Vinci II concerning the following: choice of theme, organisational structure and national emphasis, improvement in quality, delegating responsibility without bureaucracy and the financing of the project.

In order to prepare the interview, the main themes of the interview were sent to the interviewees beforehand.

4. *Telephone interviews with 16 students who have completed (or almost completed) their studies and 17 teachers regarding mobility:*
   Telephone interviews were held with internationalisation co-ordinators and with students who have completed (or almost completed) their studies who were sent abroad through Leonardo da Vinci. Questions were asked relating to: the reasons for international exchanges, the objectives and evaluation, the content, own contribution, pros and cons of Leonardo da Vinci, opportunities on the labour market, contacts, dissemination/spin-off and improvements. Finally, interviewees were asked to give an evaluation (final mark) for experience gained abroad.

Analysis

Information in the database relating to documents was worked out statistically using an SPSS program.

Use was made of the site-ordered descriptive of Miles & Huberman (1994)[3] when analysing the qualitative data from interviews with project leaders, students and co-ordinators and with representatives of national bodies. These matrices make it possible to compress large amounts of information and to search for patterns and differences based on a specific criterion.

In the case of interviews with project leaders, the information is set out according to the type of organisation connected to the principal contractor. Three types of institutions were distinguished:

- Educational institutions/institutions for vocational guidance;
- Company/branch/sector organisations/national bodies;
- National institutions, development and research institutions.

Firstly, any patterns in the answers were examined and then it was ascertained if there were any outstanding differences between the three types.

In the case of students/co-ordinators and representatives of national actors, matrices were created with the questions set out in rows and the respondents in columns.

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[3] Such a matrix "contains first-level descriptive data from all sites, but the sites are *ordered* according to the main variable being examined, so that one can see the differences among high, medium, and low sites. Thus it puts in one place the basic data for a major variable, across all sites" . Source: M.B. Miles, A.M. Huberman (1994), *Qualitative Data Analysis. An Expanded Sourcebook.* Thousand Oaks: SAGE Publications

Pilot projects and Surveys and Analyses

Project objectives

Most projects are aimed at acquiring new knowledge relating to the acquisition and (transparency of) qualifications and core competencies. Attention is paid to acquiring key skills in vocational education and training and in on the job training courses.

This should be seen in the light of economic and technological developments for which flexibility, life-long learning, employability and competition are playing an increasingly important role including on the European market.

Most cited activities are the development of training courses, modules and instruments followed by testing and developing of methods.

Project contractors and partners

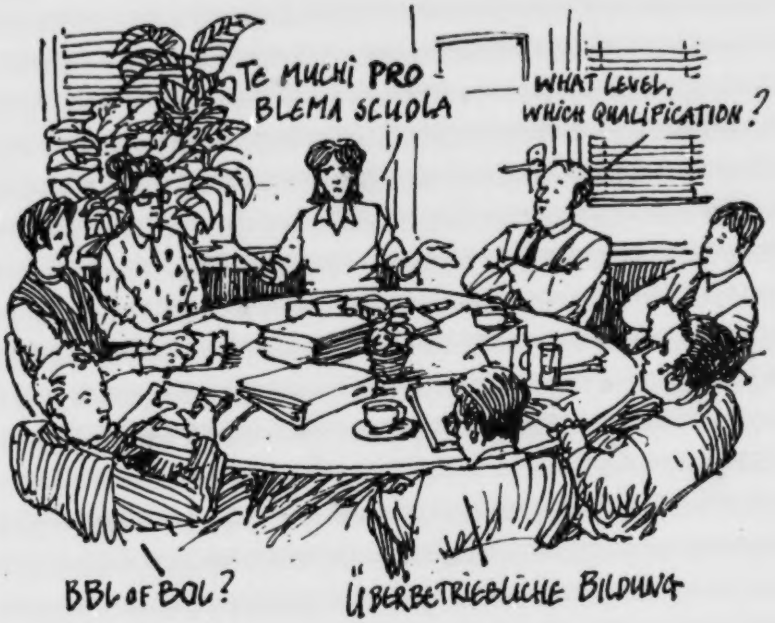
The contractors involved in the Dutch projects are mainly educational institutions (30), sectoral organisations (15) and research centres or institutions (11). Social partners or companies hardly act as contractors. A large number of partners are small and medium-sized enterprises. They operate in the partnership as a testing ground for materials or programmes, as a channel for dissemination of results or they take part in the development and contents of future programmes and modules.

Britain is the favourite

Partners are sought for near to home. Three-quarters of Dutch contractors have a Dutch partner in the project partnership. This is followed by partners from Britain (60%), Germany (45%), and Belgium (43%).

Outputs of Leonardo da Vinci

Due to the diversity and multiplicity of objectives of the Leonardo da Vinci programme, the outputs of pilot projects and surveys and analyses are also characterised by diversity and multiplicity. Out of the wide range of 19 objectives, the Dutch contractors have overwhelmingly opted for four categories with category M being the most popular (aimed at acquisition of new skills, training needs, qualifications and key skills while keeping track of the demands of the labour market).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Partial realisation
According to the project leaders of the twenty examined pilot projects and surveys and analyses, the objectives of nine projects have almost been achieved or will be achieved. In the case of eleven projects, the objectives have been partially realised. Objectives have sometimes been shifted or adjusted to a more realistic level. This mainly occurs in the case of projects with a wide European impact, for example, when attempting to obtain European qualifications for a specific training course. When this was not successful, a professional qualification system was developed. Another reason for adjustment is that while the project was running, it came to light that the objectives of the partners were entirely different. In all cases, one or more objectives were (partially) achieved.

Less priority
Educational institutions in the secondary vocational education sector stated more often that their objectives had only been partially realised. Compared to other types of contractors, internationalisation in these institutions is less part of the regular activities. In situations where the main activity (i.e. teaching) comes under pressure, less priority is given to internationalisation.

Table 2: Organisation type of the contractor and the complete or partial realisation of the objectives (in absolute figures and in percentages) (n=20)

Type of organisation	**(Virtually) completely realised**	**Partially realised**	
Educational Institutions/ Institution for career counselling	2 (22%)	6 (55%)	8
Enterprise/branch-/sectoral organisation/LOB (National Body Vocational Education)	4 (44%)	2 (20%)	6
National institutes, Institutes for research and development	3 (33%)	3 (25%)	6
TOTAL:	9	11	20

Generally speaking, the objectives of the pilot projects have not been formulated in a concrete way and are difficult to measure. This makes it difficult for researchers to ascertain if the objectives have been achieved in the quantitative sense.

Factors that inhibit the realisation of outputs

What are the reasons and circumstances why the objectives have been met to a lesser extent than was expected? Categorising leads to the following types of reasons/circumstances:

- Difference in interest, in approach between the partners/partner-countries.
  A good example is a project that aimed at creating a training course for assistants to veterinarians in a number of European countries. In some countries there is no such thing as an assistant to a veterinarian and an official education course in which graduates are allowed to perform some actions that are reserved to veterinarians is considered as taking the bread out of someone's mouth. In The Netherlands the situation is completely different: there, an assistant to a veterinarian is considered as precious support for veterinarians.
- Building up and functioning of the partnership/network/consortium. Sometimes this takes more time than expected. Sometimes partners drop out and new partners have to be found.
- The bureaucracy/situation pertaining to the technical, administrative and financial settlement by the Commission and the Technical Agency in Brussels.
  Points that have been indicated are the late remittance of letters of acceptance, the reduction of the budgets asked for, the difficulty in obtaining clarity about the beginning or the continuation of the project.
- Complexity of the project.
- Practical obstacles. One example is that the project products are in the English language, which impedes on their accessibility for Dutch participants.
- The extent to which internationalisation is part of the strategic (innovative) policy of the organisation. As far as that point is concerned there is a difference between contractors from the field of education (viz. the VET-sector) and other types of contractors (such as enterprises/branch-/sectoral organisations/ National Body for Vocational Education or national institutes/research-

and development institutes) as far as the link between innovation on the basis of Leonardo da Vinci-projects and innovation as a regular activity of an institution. For educational institutions there is less of a link between innovation on the basis of Leonardo da Vinci and other regular innovative activities. Links with the programmes steered by the national government such as BVE2000 are also scarce.

Impact of Leonardo da Vinci

The impact of the programme is also diverse, results are difficult to quantify. The impact can be achieved at various levels: within the organisation or at local, regional, sectoral or European level. It goes without saying that the level of the impact is linked to the objectives of the project.

Different types of impact

Various types of impact were pinpointed by the study:

- increased knowledge or improvement of the national, regional or local infrastructure of the qualification, training and educational system. The national or regional knowledge infrastructure also becomes more transparent;
- a more effective functioning of the labour market which is more in line with the changing requirements in the professional world;
- technology transfer;
- didactic aspects (if a module or method is used in other training courses or companies);
- organisational aspect (for instance, a wide national or European network has been set up that can be used to follow up international activities and co-operation);
- aspects of quality (for example, teaching methods, procedures, acquiring vocational practice training and product innovation).

Snowball effect

The respondents described the impact of the projects as having a 'snowball effect', 'cross fertilisation' and 'knowledge enhancement'. As is the case with outputs, the impact at European level is difficult to define. Regarding twenty projects that were examined, the impact was mainly achieved at project level within the organisation concerned or in the immediate surroundings.

Support in the organisation and market position

The impact can also be seen when the support of internationalisation in the organisation and at management level has been extended and the market position of the organisation of the contractor strengthened.

In the case of organisations where internationalisation is less important, an increase of attention and support for was noted. Examples of these are departments in universities and institutions for vocational and agricultural training. If internationalisation is part of an organisation's strategic policy, it is not put under pressure.

Strengthening of the institution's market position due to a Leonardo activity can mainly be seen in the enhancing of expertise, being asked more often to take part in internationalisation activities, more co-operation with relevant partners and maintaining the organisation's own strong position (if the organisation does not participate, it tends to loose ground).

Other types of impact are: learning experience in establishing networks and creating partnerships, learning experience in organisation, project management and approach, experience gained in weighing up the roles in the projects as a contractor or as a partner.

The following were cited as the most successful components:

- getting relevant partners involved from the beginning of the project;
- the project network;
- the project-oriented approach;
- the strategy that was chosen (e.g. supported learning);
- the products that were developed;
- intensifying co-operation in an international partnership;
- testing products in different countries;
- also learning from negative experiences, for instance, finding out why something does not work.

International mobility

Activities relating to the main objective, i.e. 'promoting transnational mobility of persons', can be found in two programme components in Leonardo da Vinci: Strand I (secondary vocational education and training for students, teachers, young workers and job seekers) and in Strand II (mobility programmes for higher education).

Placements in secondary vocational education

Placement projects can be divided up into short-term placements (3-12 weeks), long-term placements (3-9 months), placements for employees/job seekers (3 months) and exchange of teachers/instructors (two weeks). The total number of projects is clearly on the increase - in 1995, there were 50, in 1997, 69 and in 1998 and 1999, there were even more.

Although the number of projects has risen, this does not apply to the number of participants. Most participants follow a short-term placement and this number is rising sharply. The number of participants in long-term placements is gradually increasing while the number of young employees and job seekers taking part in placement projects is relatively stabile. Exchanges of teachers have become considerably less popular. Although the number of female participants is on the increase, more men than women take part in mobility projects.

Training periods in higher education

Four to six large-scale mobility projects per year are awarded in the field of higher education, around 740 grants for individual students. The number of Leonardo da Vinci grants for higher education is 3,700. A placement period lasts on average five months.

Experiences

According to those interviewed (trainees, students and co-ordinators), the personal development experienced by participants taking part in a placement abroad is extremely valuable. An international placement adds something extra to vocational training and to the participant's C.V. Those interviewed thought that the chances of finding a job increased although this was often difficult to prove in practice.

Dissemination

Little has been done within the educational institutions to exchange and distribute the knowledge gained and the experiences of students who have taken part in an international placement. Often this is limited to writing a report about the placement period. Sometimes someone is asked for information during open days or to help a new recruit planning to go abroad. It is, however, mainly limited to anecdotes about people's experiences exchanged on an informal basis while systematic exchange of information does not take place.

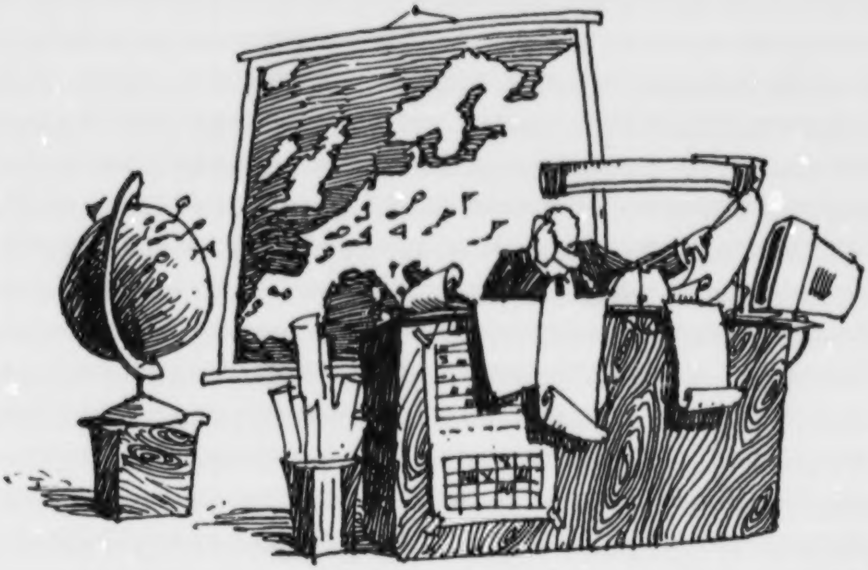
Positive final evaluation

All those interviewed were enthusiastic about their experiences abroad. Even if the projects did not go as well as expected or if participants had less positive experiences, the final evaluation was always extremely positive. Teachers are also enthusiastic about their international exchange programmes. They believe that it broadens the mind, provides information about other curricula, teaching methods and learning materials and is extremely inspiring. All this positive experience is used in the classroom. The spin-off from teacher exchange programmes appears to be extensive.

The major obstacle cited by co-ordinators is the stacks of paperwork required by the Leonardo da Vinci programme. Moreover, there is general agreement that the deadline for submission of completed questions is much too early. Allocation of funds, on the other hand, takes a long time and leads to uncertainty with all the financial risks involved.

Vision and experiences of national actors

Representatives of national actors: policy advisors of to the Ministry of Education, Culture and Science and the Ministry of Agriculture, Nature Management and Fisheries, social partners and organized interest groups have been interviewed. They have no detailed picture of the functioning of the Leonardo da Vinci projects. They find themselves at a significant remove from the projects in practice. Of course they have an opinion on the functioning of the programme in general.



COORDINATOR

Impact

- According to the national actors, it can be said to a certain degree that a contribution has been made in terms of the education aspects. However, it is difficult to show that the quality of training courses has been improved although it is accepted that overall quality can be improved by getting to know other opinions and approaches. The attention for ICT and target groups remains limited.
- The relationship between education and the labour market has improved. However, it is difficult to stimulate enthusiasm for the programme within industry and the business-world.
- Strengthening of the European dimension is a core objective but there are doubts if long-term, European networks between organisations or branches have been created. The national actors added that the European dimension should be given a fixed place in the curriculum. The Leonardo programme contributes to the internationalisation of vocational education and of the curricula.
- Leonardo encourages transnational mobility which is another core objective. However, the budget and the number of participants remain limited. Leonardo is mainly a programme for the secondary vocational education sector with the main difference being that financial support is a great deal better than that offered by other similar programmes.
- Pilot projects and mobility activities can strengthen one another. Pilot projects can lead to contacts for setting up placement projects. On the other hand, placement contacts can produce partners for new pilot projects.
- The national actors further stated that in The Netherlands much attention is being paid to the dissemination of results and products at national and European level.
- The national actors find the visibility of Leonardo da Vinci greater in the secondary vocational education than in the areas of higher education.

Learning experiences

It can be stated that learning experiences refer to:

- the formulation of objectives in realistic, concrete, and quantifiable terms;
- better input by industry and by educational interest groups;
- professional project management with an eye on the interests of the cultural dimension, imbedded in an organisation where management has committed itself to internationalisation;
- potent networks as important vehicles for the generation and dissemination of knowledge. Potent networks encompass actors that are necessary for the realisation of the project objectives;
- searching out links for the innovations in internationalisation activities with the regular innovation activities. This pertains particularly to vocational educational institutions;
- linking innovation in internationalisation programmes to other national innovation agendas and programmes;
- searching for a better balance between satisfying the demands for accuracy on the one hand and straightforward administrative, financial, and reporting demands on the other.

Recommendations

General

To achieve a clear profile of the programme in The Netherlands, a stronger relationship is required between innovation of vocational education and the developments in the areas of the labour market and employment opportunities.

More efforts in the field of communication, aimed at obtaining more understanding for the procedures and regulations of the Leonardo da Vinci programme could prevent some misunderstandings and criticism of EU bureaucracy.

Recommendations for the pilot projects

1. A better balance between on the one hand, satisfying the meticulousness required and the characteristics of a sober (financial) administration on the other, should be aimed for.
2. Project organisations should set up their administration on time and use a project-oriented approach taking account of the financial reporting requirements of the programme.
3. When it comes to selection of projects, ensure that commitment of the management level of the contracting organisation and professional project management have been realized.
4. Guarantees should be given for the development of powerful networks. These networks are the engines of innovation.
5. There should be more synergy between pilot projects and mobility activities. Pilot projects can lead to new placement contacts. Mobility contacts can result in initiatives for pilot projects.

6. There should be more coherence between innovation emanating from internationalisation and other national innovation programmes and policy agendas for education and employment.
7. Educational institutions should strive for a better connection between innovation emanating from internationalisation activities and the regular innovation activities. Internationalisation should be included in the institution's strategic policy. Then the Leonardo programme will really come into its own as 'the laboratory of innovation in vocational education'.

Recommendations for mobility activities

1. Extend the possibilities for going abroad and try to encourage participants who have not directly requested international placement abroad. For these students especially, a placement abroad can be extremely beneficial. Also consider encouraging students at lower levels (1 and 2) to take part in international mobility activities.
2. Educational institutions should pay more attention to exchange and dissemination of knowledge and experiences gained abroad. Not only for use in lessons but also for strategic policy, teaching content and information. Also during preparations for placement abroad, thought should be given to using the knowledge and experience gained abroad by students and teachers. At the moment, this is limited to anecdotes exchanged on an informal basis.
3. It is advisable to go in for long-term planning when it comes to international projects. The co-ordinators pointed to the importance of long-term contacts and the creation of networks and follow-up. Regular financial support and funding from the Leonardo programme can complement each other.

Reference

Esch, W. van, W. Meijer, J. Roemeling (2000), *Leonardo da Vinci in the Netherlands. Member State Report on the outputs and impact of the European Programme for Vocational Education*. 's-Hertogenbosch, NCU

Translation: Accents; Illustrations: Marcel Leuning (from: Main points Evaluation of Leonardo da Vinci programme *First phase 1995 – 1999*)

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A Demand of Education as a Strategic Demand in a Context of Job Rationing and Job Scarcity,

The Analysis of Further Education after Post-secondary Vocational Education in France

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Abstract

In a context of job rationing and job scarcity and of an increasing number of graduates, demand of education should be analysed as more dependent on a strategic sequential decision than a simple synoptic decision of individual allocation of resources as considered in the standard human capital theory. Further education after post-secondary vocational education in France illustrates such a behaviour. How to explain those students further education demand? What are the main factors determining their choice and their incentives to continue further studies? The aim of this paper is to analyse, in the 1990's context of high and persistent unemployment in France, the determinants of further education.

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1. INTRODUCTION

Further studies in higher education is becoming a massive and complex phenomena in France. If the initial development of human capital theory since Schultz (1961) and (1963), Becker (1962), and Mincer (1962) has contributed successfully to the individual choice analysis regarding investment in education, this approach, in a context of job scarcity and job rationing, is insufficient to explain particularly the increase of further education demand. Indeed, in the standard human capital considerations, an increase of uncertainty on future earnings and on employment outlooks and employment prospects leads to a reduction in training and demand of education because the returns to investment rate decreases in such a context. Therefore, with the high rate of unemployment among French youth and the job rationing that France is facing since decades, « *a part of young students should have been discouraged to continue further their studies and should have enter directly to the labour market* » (Lévy-Garboua, 1979). But actually, the reality does not meet the human capital model prediction. At the opposite, an increase of further education can be noticed.

According French national data from the National Centre for Research on Education, Training and Employment (Céreq- *Centre d'Etudes et de Recherches sur les Qualifications*), demand for further higher education in France keeps increasing until to reach higher and higher university levels. It is what has been observed especially for post-secondary vocational education in France as for University Diploma of Technology (*DUT*) and Advanced Technician's Certificate (BTS) holders[1]. Despite the fact that such program consists of short term training courses supposed to train, after two years of study, for the workplace, more and more students use these training programs as a springboard to go further in education. According to the 1995-Céreq data, more than 60 % of DUT's holders and 40 % of BTS graduate students continue their studies beyond this diploma. There were respectively 25 and 16% in 1980, 38 and 22% in 1984, and 45 and 25% in 1988. Therefore, aside the logic of terminal studies with a vocational aim, a logic of further education is transforming those short term education programs in some *pseudo*-first university cycle (DEUG) or broadly, as an education and training sequence or as a step to further and higher level of education.

Regarding this phenomenon, does demand of further education - as through BTS and DUT holders' behaviour- still can be analysed as, a simple individual allocation of resources or, more likely dependent on a strategic decision, given the context of job rationing in France? If selection (academic score) at the entry and admission in post-secondary vocational education in France can explain enrolment by defect of a number of students at open-door university - because they have not been accepted anywhere else-, how to explain, at the opposite, further education of students who choose deliberately these short term vocational training? Does context of job scarcity and job competition both at labour market entry and at the workplace can explain this phenomenon?

In a PhD thesis[2], beyond its pragmatic and empirical part, interesting education policies, decisions and behaviour in higher education, and transitions from school to work, I attempt to analyse, further education phenomenon after post-secondary vocational education in a context of job rationing, in France, in terms of strategies combined with an sequential decision approach. The ambition of this paper will be necessary more modest. This paper will investigate the determinants of students' incentives to continue their studies i.e. the determinants of demand of further education.

The key question is whether demand of education, in a context of job rationing, is more dependent on a simple choice of optimal allocation of resources motivated by financial benefits and returns as physical investment, or more on a strategic sequential decision, explained by a context of job scarcity and segmented markets on which impenetrable barriers between positions are observed because of the keen competition on the labour market. More precisely, given the fact that human capital theory developed the idea that investment in training and education was analogous to investment in physical capital, I will investigate whether the behaviour of further education can find some explanation in the investment returns motivated solely by greater wages and financial incentives gained by further education or it can be found logic and reasons in the increase of job competition and job scarcity context.

Hence, this paper aims at investigating whether demand of education can be derived from a strategic decision framework in a context of job rationing and job scarcity, and will be organised as follow. In Section 2, I will present the data used and will describe the logistic regression models to be estimated. Next, Section 3 presents the estimation results for various model specifications. And, the Section 4 summarises the conclusions of this study.

2. DETERMINANTS OF FURTHER EDUCATION: HYPOTHESIS, DATA, AND ECONOMETRIC MODELS' SPECIFICATIONS

2.1. Data used and hypothesis tested

To identify the impact of job rationing and job competition in the career path on demand of education, I use data from the National Longitudinal Survey of Higher Education Graduate Leavers 1987 and 1991 (*Enquêtes de cheminement de l'Observatoire des Entrées dans la Vie Active du Céreq*). Focused on post-secondary vocational education, the data analysis is restricted to full-time students who earned a DUT or BTS diploma. In the 1987 data base, the student graduated in 1984 were interviewed in March 1987, and in March 1991, respectively, for the students graduated in 1988. These data bases contain information for each DUTs and BTSs holders, on their socio-economic characteristics (gender, age, civil status, family socio-economic level, parental situation regarding job...), scholar characteristics (kind of *baccalauréat* degree, type and nature of the higher education, geographical location and region of education...), and their trajectories in the higher educational

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[2] GENDRON, (1997), *From a Strategy of Education to a Strategy of Employability: Case Sutdy on Further Education*, Ph. Dissertation in Economics, University of Panthéon-Sorbonne. This thesis has been selected for the Top-Six Economics Ph. Dissertation Award from the French *Association National des Docteurs en Sciences Economiques -ANDESE- in 1999.*

system or, in the labour market and at the workplace (kind of further education, tensions on the labour market, jobs characteristics…). From these data, in trying to identify plausible explanations for the increasing of further education, it is attempted to answer the question : « what does motivate further education » ? Therefore, I develop a set of hypothesis[3] among which, beyond financial incentives, different factors must affect the decision of further education demand. The first set of hypothesis deals with student's individual, socio-economic and scholar characteristics (hypothesis 1) : gender, age, civil status, military service (for men), parental work's situation, kind of *baccalauréat* degree earned, kind of topic studies, and nature and speciality of the higher education, geographical location of higher education… are variables which may influence their further education decision. The second set is related to the student's job expectation and job characteristics (hypothesis 2) as wages, position status, status of the contract (long-term or short term contracts). The last set, but not the least, of explanatory factors and variables integrated in models are tensions on the labour market (hypothesis 3) which includes, for the BTS and DUT schooling level, rates of unemployment, average time to find a job, proportion of six-month jobless students after they left school...
In order to analyse the determinants of further education, models specifications must be defined to address the different hypothesis. Hence, logistic regression models will allow to distinguish direct effects from the specific ones from the different variables (defined in Appendix) which may influence student decision.

2.2 Types of models: dichotomous models

2.2.1. Models' Specification

Logistic regression models analyse the influence of different modalities of qualitative variables on qualitative variables given above. First models used are dichotomous, i.e., the model is tested on the occurrence or not of the following event : To continue further their studies or To enter labour market, after students earned their DUT or BTS diploma. Hence, the endogenous variable is « continue their studies or entry to the labour market » and the exogenous variables are divided into the three categories mentioned above : socio-economic and scholar characteristics, job expectations and job characteristics, and tensions on the labour market. Moreover, further education can take different shapes. Therefore, to assess if incentives change regarding the kind of further education attended, the same type of analyses were performed for the three major further education paths : one-year vocational complementary studies (Post-BTS and Post-DUT), long vocational higher education path (as *grandes écoles*, vocation and technological masters, engineering schools…), and, long general higher education studies (academic studies at the university). Also, males and females behaviours are studied separately for each models (to avoid the bias of military service effect). I tested several models and all regression specifications include the variables reported in the tables in Appendix.

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[3] For the details of the different hypothesis and variables, see GENDRON (1999).

2.2.2. Specific statistic treatments on the data base used

To investigate tensions on the labour market and the characteristics of BTSs and DUTs jobs, I assume that the 1988 BTSs or DUTs holder, to decide whether to continue studies or to stop, made his decision based on information regarding not only his own individual environment, but also regarding transition from school-to-work process, career path… from BTSs and DUTs holders of previous years. In that purpose, I use the 1987 data base, which interviewed in 1987, 1984-BTSs and DUTs holders and calculate and build variables on labour market tensions, career path, and that, by kind of studies (BTS and DUT diploma), specialities (industrial or tertiary sectors), gender (male and female), geographical location (distinguished by five regions), and use them as proxy in the 1991-data base. In doing this, I am implicitly assuming that the student got information about for instance what could be his job situation and career path if he decided to stop his studies. Hence, with such specified models, it can be understood the student incentives to continue his studies taking into account not only his individual characteristics but also, the socio-economic context of his decisional environment.

3. RESULTS: FURTHER EDUCATION INCENTIVES AFTER DUTs AND BTSs DIPLOMAS

From the two sets of models, it emerges some general trends regarding individuals characteristics (models in Table 2 and Table 3) and special incentives according the kind of further education tracks (models in Table 4 and Table 5). Here, it would be developed the main and statistically significant results only.

3.1. Basic Models: general trend to further education

3.1.1. Individual characteristics impact on further education decision

Further education is the matter of young graduates who never failed in their education trajectories. The Table 2 and Table 3 show that whatever the gender and the kind of diploma (DUT and BTS), the probability of continuing studies after earning DUTs or BTSs diploma is higher among those who never faced school failure. This effect is a little higher for young male BTSs holders than DUTs graduates. These results stress the fact that further education after such diplomas become a logical continuation in the educational system. Evidence supporting this conclusion come from a study that I carried out on short-term further education (GENDRON, 1995). It appears that young graduates are dreading their labour market entry because « they feel to young to face it and not enough experienced[4]». As a consequence, further education, by delaying their labour market entry, would fill this gap and weaken their fear allowing them «*to add more strings to their one's bow* [5]».

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[4] Information collected through discussion with college deans (GENDRON, 1995).

[5] *Idem.* Information collected through discussion with college deans (GENDRON, 1995).

The propensity to continue studies is higher among the *general baccalauréat* holders. The *general baccalauréat* holders pursue more often their studies than the vocational and technical ones', *ceteris paribus*. This difference is also observed for DUTs and BTSs holders. Those latter have a lower probability for further education. Graduates who continue, are more likely single. To be married (or living in a couple) implied to be able to provide for household expenses, and moreover when there are children. In such a situation, further education decision can be more difficult to take compared to single student whom enrols himself in the same student context as previously he was. This factor plays an important role for females.

If to be a mother affects further education decision for female, the military service duty for males causes a break in the schooling and education process. Whatever the kind of diploma, the propensity to continue is all the higher for student since he is provisionally exempted. This result shows that if the student wants to go further on education, it will do it straight. Any break will reduce further education attendance.

Also, further education phenomenon is different from one geographical region to another. It appears that further education is higher for females BTSs holders in the South and North of France compared to Francilian region. A first explanation could be found through the great tertiary job offers in the Francilian area. And as a consequence, a less developed education pathway offer. Because, its comes out that the probability of further education is all the more important that the offer of existing pathways to continue is developed in the geographical region.

Moreover, those who continue further, do it in the same speciality of their previous studies. The effect of the speciality is greater than the kind of diploma ones (BTS or DUT). This probability to continue is all the higher for males, whatever the kind of diploma earned, since they are graduated in an industrial speciality. For females, this effect plays a less important role.

The student's socio-economic background, captured by father and mother's work situation, is sensitive for BTSs holders on their decision wheither to continue or not their studies. When effects are similar in their intensity for all other variables, except the *baccalauréat* ones, the social origin background plays a more important role on BTSs holders decision compared to the DUTs students ones. For those former graduates, propensity of further education is all the greater since the father holds a managerial position and the mother has a job. It is like the effect of social origin student background replaces the *baccalauréat* effect for DUTs holders. Where the *baccalauréat* influences positively further education of the latters, socio-economic characteristics play this role for BTS graduates. Regarding this result, can it be concluded that, when further education is the matter of BTSs graduates from a comfortable socio-economic level, that is the question of academic and scholar merit and excellence for DUTs holders? In fact, further education of BTSs students would be eased only if they got financial means compared to DUTs graduates, for whom this condition is less important because it has already played its role earlier, in the schooling process leading to the *baccalauréat général* degree.

3.1.2 Impacts of information about labour market tensions and jobs characteristics on further education demand.

In general, models show that the conditions of transition from school-to-work after a BTSs and DUTs diploma, and their jobs characteristics influence further education decision. Indeed, whatever the kind of diploma and gender (except for BTSs female holders), propensity to continue studies is all the stronger since the jobless people proportion among BTSs and DUTs holders of previous years thirty three months after they left school, remains important.

Nevertheless, whatever the kind of diploma (BTS or DUT), females seem to be more sensitive to unemployment duration than to its risk itself. Then, the longer the duration of unemployment, the greater females' propensity to pursue. Those contrasts between males and females regarding labour market and job variables can illustrate different sensibilities to the time's perspective and time's scale regarding job. Before finding a stabilised position on the labour market (VERNIÈRES, 1996), females pay more attention to indicators regarding transition from school-to-work process than they do for job characteristics. At the opposite, males priority concern are attached to the job stability and to the career path opportunity ; especially the probability to evolve toward managerial position for DUTs graduates. Beyond those sensibilities, it can be observed specific behaviour between the two kinds of diploma graduates, DUTs and BTSs holders. Those latters are especially sensitive to a rapid access to the first job to decide whether pursuing or not, instead of job stability for DUTs students.

3.2 Determinants of BTS and DUT graduates' educational pursuit according the different further education paths.

The same type of analyses is performed for the three major further education paths: one-year complementary study (Post-BTS and Post-DUT), long vocational higher education programs (as *grandes écoles*, vocation and technological masters, engineering schools…), and, long general higher education studies (general academic studies at the university). The results are reported in Table 4 and Table 5. In this second set of models, I try to examine the determinants of further education demand by the kind of further studies attended and, to observe whether there are different incentives and some convergence or divergence between the different students' pursuers characteristics.

3.2.1. Dichotomous models to investigate incentives and determinants of further education according the different further education programs

The choice of dichotomous models (instead of multinomial ones) to investigate determinants of further education according the different tracks, is legitimated by the fact that I assume that graduate students who decide whether to continue or not their studies, do not decide in a absolute way, i.e. "to continue or not", but instead, they already got in mind which kind of studies they will attend or at least they got some ideas. Indeed, number of students when they decide to continue, are animated by special motivations regarding the kind of studies they plan to attend. They can be motivated by acquiring a new technical or vocational specialisation or receiving a multi-skills training, as in Post-BTS and DUT training program, or by earning an higher diploma, or/and by combining both a diploma and a vocational specialisation as the masters of science and technology. Therefore, models has been estimated with the following endogenous variable « to continue in a given track or to stop ».

3.2.2. Different degrees of socio-economic variables influences according the different further education tracks.

As in the first set of models, the impact regarding student age is significant for all tracks but has a greater impact on students continuing in vocational tracks compared to the other ones. Nevertheless, by kind of studies specified, age impact is all the stronger since males are graduated from STS colleges and continuing on a vocational track and, for females DUT holders enroled in short term further education program. Not to have failed in their previous school years seems all the higher important since students want to gain a specialisation or to be trained to a profession quickly leading to a job. The choice of vocational training and education can be motivated by a fast and imminent entry desire to the labour market and at the opposite, the long and general studies ones by may be an interest for long studies from the outset, whatever the school failure experienced.

The military service duty impact confirms the previous result. The fact to be provisionally exempted has a positive impact on further education demand, and especially for those who plan long studies. This result can reveal two kinds of decision. On one hand, the student didn't ask for delaying his military service and then, his alternative regarding further education will be dependent on his military incorporation deadline. That could explain the behaviour of students who take a less involving decision as enroling in short vocational studies, waiting for their military incorporation. On the other hand, students who want to go further on education, will do it straight, and therefore, will ask directly for a deferment of military service call-up. The provisionally exemption characterised especially students who enrol in long studies after they earn their BTSs or DUTs diploma. At the opposite, short term studies are the matter of students who were waiting for their incorporation ; these results confirmed those found in case-studies about further education in short-term studies as Post-BTS, Post-DUT program, so called Local Initiative Complementary Training –FCIL-, (GENDRON, 1995).

The speciality highlights differences regarding the different training tracks followed. To have earned a BTS or DUT degree in an industrial topic shorten further education compared a tertiary topic. An explanation can be found in the higher education market where short term further education supply regarding industrial sector is not too developed. At the opposite, a greater supply in tertiairy training incite or induce to further education for BTS and DUT graduated from this latter sector ; especially for females. Nevertheless, further education in a long vocational track is all the higher since males are graduated in an industrial topic and all the weaker since they are females and from a tertiary area.

The geographical location variable underlines the effect of higher education supply. For females, the propensity to pursuit is dependent on the higher education possibilities offer in their region, i.e. the geographical proximity of the supply ; and especially for females continuing in a vocational track who earned a BTS diploma. This result can illustrate the will to continue further education but only if the latter do not imply to move geographically (MARTINELLI, 1995). For males, this variable plays an lighther role in their further education decision compared to other variables.

The family situation reveals a particular sensitivity for females. The propensity to continue their studies is dependent on their family situation. To be single plays an more important role for females than males to enrol in long term studies. Indeed, the absence of family charges allows females to continue in a long track. For a male, to be single also plays a positive role but whatever the further education training attended.

3.2.3 Different profiles according the fear of job competition on the labour market and job expectations

If the access to a first steady job motivates further education, especially for BTSs holders, their university mates (DUT students) are not only preoccupied by job stability but also by job wages and their career path. Making a distinction between the nature and length of further education tracks allows to highlight different profiles between males and females. Males BTSs or DUTs holders enroled in a short term further education are principally motivated by the job characteristics. For those attending long vocational education track, especially BTS holders, they seem to fear unemployment and job precariousness. The DUT holders, beyond the will to access directly to a steady job, pay a lot of attention to their career path, and the propensity to got rapidly a managerial position.

Also, the BTS and DUT holders following their studies at the university, seem to have some similitude regarding their further education incentives : job characteristics, as a direct access to a steady job, and career path, especially for DUT graduates.

If the females who earn a BTS diploma and enrol in short term higher education seem to be sensitive to the « wage » variable, the risk of unemployment plays a more important role in their decision.

Regarding short term further education enrolment, BTS students would made up the fear to be jobless by attempting with those complementary training to delay their entry on the labour market. For their university mates, that is not the unemployment risk which motivates further education but above all unemployment duration. Therefore, it can be said that those vocational complementary training allow them to get a specialisation or to acquire multi-competencies which will distinguish their holders from the other candidates on the labour market. Also, this complementary training, because they are directly operational, will help them to find quicker a job than if they have stopped earlier with their unique BTS or DUT diploma. Beyond the wish to access rapidly to a job, females who earn a BTS diploma and continuing their studies at the university are motivated by a steady job and the desire to evolve toward managerial positions. Similar concerns motivate their male mates, but instead of position career path's concern for females, males worry about their earning profiles.

Regarding students enrol in long vocational education tracks, the determinants of higher education demand are different between DUT and BTS holders'. The kind of diploma plays a special role. Indeed, DUT holders seem mainly motivated by jobs characteristics (job stability, wage) than BTS students, who are focused on the duration of unemployment experienced by their mates of previous years.

3.2.3. Convergence et divergence between the different profiles

Given the main further education determinants, it appears some convergence and divergence between some profiles, according individual characteristics and the labour market situation. Regarding students socio-economic characteristics, results reveal an interesting fact regarding males and the « age » variable. The fact to be at the normal age regarding school trajectory is all the more important since students enrol in a long vocational education track. This behaviour can reveal a intermediate choice between postponing for one year their entry to the labour market according the labour market situation, and using those BTS and DUT training program as a step in their schooling plan. This intermediate choice of long vocational studies can be difficult to implement if the latter has not been planed before because it involves into a new stage and a new education cycle in which the fact not to have failed in the previous school years influences a lot. If for females, the « age » variable plays also a positive effect, their family situation outweighs all others variables regarding their further education decision. The more longer are the studies, the more it is important to be single for a female.

Females and males, enroled in long vocational education track, whatever the diploma (IUT or STS) show some convergent traits: their decision are dependent on their father's occupation, especially the fact that the father got a managerial position. Mothers' job situation intervenes only for males who hold a BTS diploma and enroled in short vocational education track or at the university.

Regarding school background, the fact to have earned a « *baccalauréat général* » has a strong positive impact on further education, whatever the gender. Nevertheless, it plays all the more important role since DUTs holders enrol in long term further education track. That the same for males holding a BTS regarding a short term vocational further education decision and, for females enrol in long vocational education tracks.

Divergence and convergence observed between profiles for certain variables related to the tensions on the labour market in one hand, and the job characteristics on the other hand, do not reflect those observed for the student individual characteristics. Indeed, for females, the kind of diploma BTS or DUT play a prior role on further education determinants. Nevertheless, aside that, it appears some similarities related to the nature and the length of studies followed. As, for those attending vocational education tracks, whatever their length, BTS females holders are extremely sensitive to the transition from school-to-work conditions. For those graduated from IUT, the similarity of certain profiles is based more on the study length than the nature.

Also, job characteristics are more a concern for DUT holders continuing long general or vocation further education. If for females the kind of diploma (BTS or DUT) is a structuring element for their further education, for males, job characteristics variable is prior. Beyond this male convergence, there is a diploma effect regarding the way to feel career path whatever the further education track chosen. All students are motivated by the chance to evolve toward managerial positions.

Furthermore, it can be noted some convergence between those who continue in a long track. Whatever the nature of those studies, DUT and BTS holders share the same desire to access to steady jobs. Those enroled in long vocational education tracks are attached, beyond the stability, to the risk of unemployment. In contrast, BTS and DUT holders attending short term studies present some divergent traits.

BTS holders with their complementary training seek to access directly to a steady job, instead of, for those holding a DUT diploma, the chance to evolve toward managerial positions dependent on a « bac+3 » diploma level ; actually the first « bac+3 », the national diploma of specialised technician – *DNTS* – were implemented after a DUT diploma and not the BTS ones.

4. CONCLUSION

If the initial development of human capital theory has contributed successfully to the individual choice analysis regarding investment in education, this approach, in a context of job scarcity and job rationing, is insufficient to explain particularly the increase of further education demand. In such context, the demand of education is more likely dependent on a strategic sequential decision than on a simple choice of optimal allocation of resources.

From this analysis of further education phenomenon after post-secondary vocational education in a context of job rationing in France, and in terms of strategies combined with an sequential decision process approach, I attempted to show, on one hand, that the demand of education expressed through the further education behaviour in such labour market context, is dependent on a strategic reaction to job competition on the labour market, i.e. facing « adversaries » merged into the labour supply of graduates of same profiles – if I assume that there are not only one labour market but segmented labour markets- and, not only related to an optimal allocation of resources. Therefore, the more pessimistic anticipations on the labour market situation, the more they continue their studies and moreover when they earned a *« baccalauréat general »* and they are from a comfortable social classes and they never failed at school.

On the other hand, in this research I show (but not developed in this article), that the demand of education in such a labour market context, and because of a strategic reaction, proceeds more from a sequential decision process than a synoptic decision ones. Further education decision can illustrate the behaviour of an actor grappling with reality, who knows how to act and re-act to the evolution of his environment, to difficulties induced by uncertainty, appealing to as much calculation reasoning as cognitive ones. By the flexibility its confers on strategy, sequential decision will allow to play a double role of reducing uncertainty and of conditions of optimality. Economic strategies are also concerned by intermediate situation which are neither determinist nor completely erratic, therefore, at the utility of strategic calculation, the actor - the student-, can add his ability of learning. To the partial determinism will respond the flexibility of strategies, i.e. the ability of integrating effectively the learning's contribution. Thus, demand of education expressed in further education phenomenon has to be distinguished from a simple individual decision of optimal allocation of resources as postulated in the standard human capital approach, by the fact that the underlying decisional step would also implies cognitive capacity of resolving problem's and information treatment's use. Taken as a whole, and motivated by uncertainty, the further education behaviour makes sense and could turn out to be an optimal choice in a sequential decision approach.

To end, regarding the empirical analysis carried out in this paper, the results have been confirmed by those from the 1995-CEREQ-light-inquiry data base (CAHUZAC & PLASSARD, 1996). But, the richness of this analysis come from the two data bases I used which contain more information that the 1995-data base and allowed me to specify models regarding the kind of further education tracks. Those models shed light on the determinants of further education according to the length and the nature of further studies attended. It shows different motivations which were impossible to highlight from the 1995-data base. Beyond the distinction between males and females, and between the different kind of diploma (BTS and DUT), it emerges from these models, in a short cut, two particular profiles. Short vocational further education demand could respond to students' short term incentives, i.e. in terms of transition from school-to-work. For those enroled attending long studies at the university after earning their BTS or DUT diploma, are motivated by jobs characteristics and career path variables, especially the propensity to access to managerial positions ; and the others, attending long vocational education program seem to combine all those different motivations.

APPENDIX

Table 1 : Characteristics of the Population

Individuals Characteristics of the Population (BTS and DUT graduates)		Distribution by further education program attended in %		
Total BTS : 35 481 Total DUT : 20 400		Short vocational studies as Post-BTS/DUT (coded Short-VET)	Long general studies (coded long-gene)	Long vocational education program (coded Long-VET)
Kind of diploma	BTS	15.93	42.91	41.17
	DUT	10.49	62.93	26.58
Gender	Males	16.7	55.02	28.28
	Females	8.04	51.47	40.48
Family Situation	Single	12.2	54.95	32.88
	Married or divorced	19.13	43.43	37.44
Kind of « *Baccalauréat* »	Technical	10.76	57.46	31.78
	General	17.48	45.86	36.65
Geographical studies location	South	13.46	50.71	35.87
	Centre	17.11	53.24	29.64
	North	15.53	57.0	27.47
	West	9.7	56.94	33.37
	Francilian (Paris and suburban)	10.35	51.93	37.73
Father's occupation	Manager	11.36	50.55	38.09
	Non manager	14.38	55.89	29.73
Mother's work situation	Working	13.04	53.52	33.45
	Not working	13.05	53.54	33.41

Data Source : Céreq Data, Treatment Céreq-Matisse-Laboratoire d'Economie Sociale.

Table 2 : Analysis of the variables that influence further education for males, by kind of diploma

Explanatory Variables		*BTS*		*DUT*	
reference	*actives*	*coeff.*	*sign.*	*coeff.*	*sign.*
Intercept.		-0,75		1.3	
Individuals characteristics					
Ile de France	South	-0.24	-	-0.54	--
	Centre	0.11	ns	-0.28	-
	North	-0.16	ns	-0.08	ns
	West	-0.19	-	-0.65	--
Late in schools years	Normal age	0.93	++	0.72	++
Married, divorced	Single	0.64	++	0.55	++
Father, not manager	Father, manager	0.54	++	0.22	+
Non working mother	Working mother	0.14	+	-0.04	ns
Military exempted	Military deferment	3.48	+++++	4.07	+++++
Technical « Baccalauréat »	General "Baccalauréat"	0.25	+	0.73	++
Studies specialities : « services » area	Industrial specialities	0.69	++	0.73	++
Tensions on the labour market					
Low rate of unemployment	-medium	0.22	+	0.24	+
*	-high	0.11	ns	-0.50	--
Low average duration of unemployment	-medium	-0.19	-	-0.43	-
*	-high	-0.68	--	-0.22	-
Low % of up to 6 months jobless people	- medium	-0.07	ns	0.21	+
*	-high	-0.31	-	0.09	ns
Jobs Characteristics					
wage> median wage *	wage<=median wage	-0.16	-	0.13	+
Low % of non steady jobs	- medium	0.48	+	0.33	+
*	- high	0.72	++	0.20	+
High % of managerial staff *	- low	-0.02	ns	0.39	+
High % of direct steady jobs	-low	0.17	ns	0.40	+
	-medium	-0.14	-	0.53	++

Data Source : Céreq Data, Treatment Céreq-Matisse-Laboratoire d'Economie Sociale.

* in March 1987

ns : not significant to the threshold of 5%.

Concordant pairs BTS and DUT holders' : 75.7 % et 82.3 %.

Table 3: Analysis of the variables that influence further education for females by kind of diploma

Explanatory Variables		*BTS*		*DUT*	
reference	*actives*	*coeff.*	*sign.*	*coeff.*	*sign.*
Intercept		-0,44		0.07	
Individuals characteristics					
Ile de France	South	0.63	++	-0.4	-
	Centre	0.09	ns	-0.43	-
	North	0.24	+	-0.73	--
	West	-0.41	-	-0.36	-
Late at schools years	Age normal	0.72	++	0.82	++
Married, divorced	single	1.23	+++	1.24	+++
Father non manager	Father manager	0.57	++	0.48	+
Non working Mother	Working mother	0.13	+	-0.03	ns
Technical Bac	*Général Baccalauréat*	0.62	++	0.67	++
Industrial Speciality	Tertiary Speciality	0.17	+	0.40	+
Tensions on the labour market					
Low rate of unemployment *	-medium	-1.13	---	0.61	++
	-high	-0.39	-	0.16	ns
Low average duration of unemployment *	-medium	0.81	++	0.32	+
	-high	1.64	+++	-0.49	-
Low % of up to 6 months jobless people *	- medium	-0.83	--	0.12	ns
	-high	-0.73	--	-0.17	ns
Jobs Characteristics					
wage> median wage *	wage<=median wage	0.15	+	0.29	+
Low % of non steady jobs *	- medium	-0.43	-	0.32	+
	- high	-0.18	ns	0.71	++
High % of managerial staff *	- low	-0.18	-	-0.27	-
High % of direct steady jobs	-low	0.18	+	0.004	ns
	-medium	0.54	++	-0.16	ns

Data Source : Céreq Data, Treatment Céreq-Matisse-Laboratoire d'Economie Sociale.

* in March 1987

ns : not significant to the threshold of 5%.

Concordant pairs BTS and DUT : 71.1 % et 70.9 %.

Table 4: Analysis of the variables that influence further education for males by diploma, according to the further education programs attended

Explanatory Variables		*BTS*						*DUT*					
		Short-VET		*Long-VET.*		*Long-Gene.*		*Short-VET*		*Long-VET.*		*Long-Gene.*	
reference	*active*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*
Intercept		-1.94		-1.77		-2.06		-2.67		-4.71		-1.20	
Individuals characteristics													
Ile de France	South	0.30	+	-0.4	-	-0.25	-	-0.66	-	-0.9	--	-0.38	-
	Centre	-0.06	ns	0.61	++	-0.09	ns	0.15	ns	-0.9	--	-0.14	ns
	North	-0.19	ns	0.45	+	-0.44	-	0.42	+	-0.62	--	-0.01	ns
	West	0.14	ns	-0.72	--	-0.12	ns	-0.85	--	-1.23	---	-0.26	-
Late in schools years	Normal age	0.74	++	1.19	+++	0.72	++	0.75	++	0.93	++	0.63	++
Married, divorced	Single	0.77	++	0.66	++	0.51	++	0.13	ns	0.93	++	0.67	++
Father, not manager	Father, manager	0.29	+	0.67	++	0.56	++	0.06	ns	0.48	+	0.13	+
Non working mother	Working mother	0.38	+	-0.14	-	0.22	+	-0.03	ns	0.17	ns	-0.04	ns
Military exempted	Military deferment	2.10	++++	3.07	+++++	4.16	+++++	0.90	++	4.38	+++++	4.43	+++++
Technical « Baccalauréat »	General "Baccalauréat"	0.5	++	0.23	+	0.27	+	0.63	++	0.68	++	0.8	++
Studies specialities : « services » area	Industrial specialities	-0.29	-	1.68	+++	0.13	ns	-0.07	ns	1.83	+++	0.67	++
Tensions on the labour market													
Low rate of unemployment	-medium	0.35	+	-0.20	ns	0.52	++	0.42	+	0.43	+	0.06	ns
•	-high	-0.92	--	0.52	++	-0.07	ns	-0.25	ns	-0.39	-	-0.64	--
Low average duration of unemployment	-medium	-0.5	--	0.44	+	-0.34	-	-0.35	ns	-0.17	ns	-0.70	--
•	-high	-0.65	--	-1.19	---	0.01	ns	-0.62	--	0.40	+	-0.42	-
Low % of up to 6 months jobless people	- medium	0.33	+	-0.52	--	0.07	ns	0.26	ns	0.52	++	0.06	ns
•	-high	0.17	ns	-1.48	---	-0.04	ns	-0.01	ns	0.60	++	-0.05	ns
Jobs Characteristics													
wage> median wage •	wage<=median wage	-0.35	-	-0.14	ns	-0.01	ns	0.29	+	0.04	ns	0.05	ns
Low % of non steady jobs	- medium	-0.25	ns	1.20	+++	0.34	+	0.10	ns	0.26	ns	0.70	++
•	- high	-0.16	ns	2.22	++++	0.45	+	0.40	+	-0.54	--	0.52	++
High % of managerial staff •	- low	0.20	ns	-0.54	--	0.17	ns	0.69	++	0.38	+	0.24	+
High % of direct steady jobs	-low	0.87	++	-0.45	-	0.19	ns	-0.54	--	1.39	+++	0.32	+
	-medium	1.09	++	-1.97	---	0.28	+	0.06	ns	1.25	+++	0.31	+

Data Source : Céreq Data, Treatment Céreq-Matisse-Laboratoire d'Economic Sociale.

• in March 1987,
ns : not significant to the threshold of 5%.
Concordant pairs for BTS holders: 71.0 %, 85.7 %, 78.1 % and for DUT holders: 69.2 %, 87.1 %, 85.2 %.

Table 5: Analysis of the variables that influence further education for females by diploma, according to the further education programs attended

Explanatory Variables		*BTS*						*DUT*					
		Short-VET		*Long-VET.*		*Long-Gene.*		*Short-VET*		*Long-VET.*		*Long-Gene.*	
reference	*actives*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*	*coef.*	*sign.*
Intercept		-2.44		-0.89		-1.65		-4.05		-2.87		0.15	
Individuals characteristics													
Ile de France	South	2.08	+++	1.93	+++	-0.66	--	0.30	ns	-0.67	--	-0.49	-
	Centre	0.49	+	0.60	++	-0.23	-	1.30	+++	-1.2	---	-0.39	-
	North	0.07	ns	1.49	+++	-0.60	--	0.48	+	-1.52	---	-0.5	--
	West	0.53	ns	-0.36	-	-0.65	--	-0.04	ns	-0.62	--	-0.39	-
Late in schools years	Normal age	0.33	+	0.75	++	0.85	++	1.06	+++	0.75	++	0.89	++
Married, divorced	Single	0.52	++	1.05	+++	1.84	+++	0.86	++	1.16	+++	1.33	+++
Father, not manager	Father, manager	0.68	++	0.74	++	0.42	+	0.35	+	0.83	++	0.26	+
Non working mother	Working mother	-0.04	ns	0.09	ns	0.21	+	0.32	ns	-0.04	ns	-0.07	ns
Technical "Baccalauréat"	*General "Baccalauréat"*	0.5	++	0.92	++	0.66	++	0.26	ns	0.46	+	0.88	++
Industrial Speciality	Tertiary Speciality	2.87	++++	-2.12	---	0.70	++	2.55	++++	0.31	+	0.63	++
Tensions on the labour market													
Low rate of unemployment	-medium	0.01	ns	-2.5	----	-0.17	ns	-0.46	ns	0.64	++	0.75	++
*	-high	1.39	+++	-0.83	--	-0.03	ns	-0.42	ns	0.24	ns	0.26	+
Low average duration of unemployment	-medium	-3.14	----	2.56	++++	-0.71	--	2.29	++++	1.55	+++	-0.08	ns
*	-high	-2.99	----	3.60	++++	-0.29	ns	0.61	ns	0.28	ns	-0.74	--
Low % of up to 6 months jobless people	- medium	1.56	+++	-2.48	---	0.41	+	-0.02	ns	0.19	ns	0.03	ns
*	-high	1.18	++	-2.24	---	1.29	+++	-0.45	ns	0.07	ns	-0.20	-
Jobs Characteristics													
wage> median wage *	wage<=median wage	1.26	+++	0.07	ns	0.18	ns	0.17	ns	0.47	+	0.32	+
Low % of non steady jobs	- medium	-0.5	--	-0.47	-	-0.44	-	0.41	ns	0.54	++	0.32	+
*	- high	-3.17	----	0.99	++	-0.53	--	0.57	ns	0.61	++	0.86	++
High % of managerial staff *	- low	-0.44	-	-0.87	--	0.39	+	-0.68	--	0.07	ns	-0.51	--
High % of direct steady jobs	-low	-0.48	ns	-0.42	-	0.85	++	-0.81	--	0.14	ns	-0.18	ns
	-medium	-0.78	--	0.85	++	0.38	+	-1.11	---	0.31	+	-0.43	-

Data Source : Céreq Data, Treatment Céreq-Matisse-Laboratoire d'Economie Sociale.

* in March 1987, ns : not significant to the threshold of 5%.
Concordant pairs for BTS holders : 75.3 %, 81.5, 74.2 % and for DUT holders : 75.4 %, 75.0 %, 72.9 %.

REFERENCES

ALTONJI J. G. (1993), «The demand for and return to education when education outcomes are uncertain », Journal of Labor Economics, vol. 11, n°1, p. 48-83

ARROW K. J. (1973), Higher education as a filter, Journal of Public Economics, vol. 2, July, 3, p.193-216.

BECKER G. S., (1964), Human Capital. A theoretical and empirical analysis, with special references to education, Chicago, The University of Chicago Press, p.9.

COMAY Y., MELNIK A., POLLATSCHEK M. A. (1973) « The option value of education and the optimal path for investment in human capital », *International Economic Review*, June, n° 2, vol. 14 p. 421-435.

GAZIER B. (1989), Employabilité de crise et crise d'employabilité, ANPE report, 74 p.

GENDRON B. (1999) « Cheminement de formation dans l'enseignement supérieur : l'exemple des diplômés de STS et d'IUT. Une tentative d'analyse des déterminants de la poursuite d'études à l'issue de ces formations », *in CEREQ Documents, Seminar Serial*, n°141, february, pp.165-188.

GENDRON B. (1998) « Le comportement stratégique de la demande d'éducation, le cas de la poursuite d'études à l'issue d'un BTS et d'un DUT », chapter in Les politiques sociales catégorielles, Fondements, portée et limites, L'Harmattan, collection Logiques Economiques, pp.174-195.

GENDRON B. (1997) *D'une stratégie de formation à une stratégie d'employabilité : tentative d'analyse de la poursuite d'études après le BTS et le DUT*, Ph.Dissertation in Economics, University of Paris 1 Panthéon-Sorbonne, 438p.

GENDRON B. (1996a), « Les salaires et les emplois occupés par les diplômés d'IUT et de STS en Ile de France », *Regards sur l'Ile de France, INSEE*, n°32, pp.14-17.

GENDRON B. (1996b), « Le temps d'accès à l'emploi des diplômés d'IUT et de STS en Ile de France »in , *Regards sur l'Ile de France, INSEE*, n°31, pp.13-14.

GENDRON B. (1995), « Les formations complémentaires d'initiative locale de niveau III, négociation et construction », *Formation Emploi* n° 52, October-December, p 49-52.

GENDRON B. (1995), *Les formations complémentaires d'initiative locale de niveau III, Collections CPC* , n°5/95, National Ministry of Education, January, 136 p.

LEVHARI D. & WEISS Y., (1974), « The effect of risk on the investment in human capital », *American Economic Review*, n°64, December,p. 950-963.

LEVY-GARBOUA L. (1979), « Marché du travail et marché de l'enseignement supérieur » in Eicher J. C. et Lévy-Garboua L. eds., Economique de l'Education, Economica, pp. 178-209.

MARTINELLI D. et VERGNIES J. F. (1995), « L'insertion professionnelle des diplômés de l'enseignement supérieur se dégrade », *Céreq Bref*, n°107, March.

MINGAT A., (1977), *Essai sur la demande d'éducation*, Ph.D in Economics, University of Dijon, 428 p.

VERNIÈRES M., (1996), *L'insertion professionnelle, Analyses et Débats*, Economica, Paris, pp. 57-70.

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Learning and work experience: European perspectives on policy, theory and practice

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Introduction

The research project on which this paper is based was developed in the context of the knowledge economy and the twin challenge of globalisation and regionalisation. It addresses the changing nature of work and the elusiveness of the true learning potential of work experience. The project has examined the processes of work experience in the light of: developments in learning theory, changes in the European labour market and national policies and trends in workplace requirements and organisation (Griffiths *et al* forthcoming). The project has been carried out under the EC Fourth Framework (Targeted Socio-Economic Research - TSER) under the title of ***Work Experience as an Education and Training Strategy: New approaches for the 21**st**. century*** and has prioritised the exploration of work experience as an informal (work-based) context of learning. It involved partners from the United Kingdom, Sweden, Ireland, Spain, Denmark and Hungary. The project will be completed early in 2001 and a European research conference will be held on 2-3 February in London to discuss its findings.

The policy context: summary

The project's policy studies have shown:

that progress in policy development appears framed as improvement in the quality of management arrangements, not learning process

that there is a failure to develop new frameworks – theoretical and conceptual – for relating learning in work-based contexts to formal education and training

that the multifunctionality of work experience falls short of capturing its learning potential, failing ultimately to be rooted in the knowledge that work is not solely a context which students learn *about* – but is also a context ***through which*** students can learn and develop.

that the difficulties experienced by policy makers in interpreting change and setting new developments in motion are confirmed and that they are exacerbated by the deep embedding of the academic/vocational divide, itself exacerbated by the 'digital division'.

that these findings are in contradistinction to the easy consensus across the EU about the 'value' of work experience, despite the dearth of good evaluation studies, particularly of learning, and the fact that, for all the fresh thinking about work experience, the mainstream curriculum has remained largely unaffected – certainly in the UK but elsewhere in Europe too.

that the type of thinking devoted to 'learning outcomes' needs to be challenged. A narrow focus on outcome *at the expense of* the process of learning and the relationship between different types of learning (formal and informal) is at best counter-productive.

that the pressure to make work experience more widely available to young people has addressed new issues about skill development by relying on old models of learning in the workplace. Granville (1999) refers to the phenomenom of 'innovation without change', the capacity of a system to accommodate the rhetoric of reform within the culture and practice of the *status quo*.

Learning through work experience

The brief summary given above of the 'policy context' (Griffiths, Guile and Attwell forthcoming) provides the background to the project's theoretical explorations of the following themes which have arisen recently as major topics of concern in socio-cultural learning theory. The themes are as follows: the question of 'context' – in the sense of the learning which occurs within and between different contexts of education and work; the question of 'mediation' – in particular, the process of mediation which can provide learners with the basis for connecting context-specific learning with ideas or practices originating outside those contexts; 'boundary crossing' - in the sense of re-examining and re-formulating questions about learning within and between the context of education and work; 'consequential transitions' - an individual, developmental process involving the full person, not just the acquisition of another skill; and the concept of 'connectivity'.

The concept of *context* (Beach 1999; Engeström forthcoming; Hutchins 1995) and *practice* (Lave 1993; Lave and Wenger 1991; Wenger 1998) have in recent years become crucial to the debates about how students learn and develop through all forms of work-based activity. Up to now, however, most models of work experience have either ignored the influence of context upon learning or have approached this issue mechanistically (Guile and Griffiths 2001). In order to analyse the relationship between the learning which occurs within and between the different contexts of education and work, we discuss briefly the debate in contemporary learning theory about the way in which context helps to 'shape' learning and development. We go on to outline the typology of work experience developed through the TSER project which includes a new model of work experience – the *connective model*. Finally, we highlight through case study evidence how the connective model provides the basis for a productive and useful relationship between formal and informal learning.

Work as a context for learning and development

The reappraisal of the work of John Dewey (1981, 1986 and 1988) charted by Cole (1995), the recent interest in the affinities between Dewey's and Vygotsky's (1978) ideas about the social basis of learning (Prawat 1999), along with the growing influence of the cultural-historical school of psychology (itself influenced by the work of Vygotsky), has been very influential and has involved a revisiting of the question of context in contemporary debates about learning (Beach 1999).

Dewey emphasised the importance of not separating events and circumstances from their contextual whole: 'in actual experience, there is never any such isolated object or event, an object or event is always a specific part, phase, or aspect, of an environment experienced world' (Dewey 1986). This understanding that context is not fixed, well-defined and stable but is shaped by the relationships between people, their activity and the social world of which they form part is complemented by Vygotsky's work and the work which it went on to influence. By placing the idea of *mediation* at the centre of the learning process, Vygotsky reconceptualised learning as a 'complex mediated act', a triad involving the subject (the individual), the object (the task or activity) and mediating artifacts (*eg*, communication and information technologies, books). Although they offer slightly different interpretations of Vygotsky, the ideas of *situated learning* (Lave and Wenger 1991), *distributed cogntion* (Hutchins 1997) and *activity theory* (Engestrom 1996b) have contributed to broadening the debate about the relationship between context, mediation and human development. These theories offer us different but complementary insights into the process of learning through work experience.

Lave and Wenger (1991) have demonstrated how, in fairly stable and well-bounded 'communities of practice', the process of 'legitimate peripheral participation' enables individuals to acquire knowledge and skill through contact with more experienced others, while Hutchins (1997) has demonstrated how the learning of new tasks is mediated by many different types of structures distributed throughout different cultural settings. Engeström has concentrated on analysing how learning occurs in work situations which are not necessarily stable and well-bounded (Engeström *et al* 1995, Engeström *et al* 1996). His basic unit of analysis is the idea of an 'activity system', in other words, the complex interrelations between individuals and different workplace 'communities' or 'networks' which are influenced by the division of labour and workplace rules and procedures. Engeström argues that workers are increasingly expected to act as 'boundary crossers' between 'activity systems', in other words, to possess the ability to contribute to the development of new forms of social practice and to produce new forms of knowledge. According to Engeström, this involves learning how to contribute to the transformation of work contexts, an issue rarely raised in the work experience literature.

Lave's and Wenger's, Hutchins' and Engeström's analyses of the interrelationship between context and practice raise interesting questions, including the question of how easily students gain access to and operate in such work contexts. A recurring assumption in the general education and VET work experience literature is that this happens *ipso facto*. However, this neglects the extent to which participating in a 'community of practice' can be highly problematic. As Ghererdi *et al* (1998) have observed, it requires 'host' organisations actively to provide opportunities for learners to observe, discuss and try out different practices with members of the 'community' they have temporarily joined.

As we demonstrate through our case study evidence, participating in workplace 'communities of practice' raises serious questions for the providers of work experience about, first, the extent to which the 'host' organisation enables students to participate in interacting with more knowledgeable others in the workplace 'zone of proximal development' – something which may well depend upon its Human Resource Development strategy (Guile forthcoming). Second, the need for education and training providers of work experience to recognise that students need to learn in ways different to those in which they learn at school or college (Beach and Vyas 1998) and that students do not easily accomplish these methods of learning, partly because these types of 'horizontal development' are not easily reconciled with conventional ideas about 'vertical development' and run counter to school experiences. This calls for careful mediation.

Consequently, Lave and Wenger, Hutchins and Engeström's ideas suggest that new questions should be asked about how students learn through work experience provided as part of their general education or VET. It is thus important to explore how work experience can provide (i) a context for participating in 'communities of practice' and learning how to develop the ability to act as a 'boundary crosser' and (ii) a means of re-examining and re-forming the relationship between work experience and formal programmes of study.

The relevance of these issues for work experience is gradually being recognised elsewhere in Europe. In a report of the LCVP research and evaluation project in Ireland, Granville (1999) has criticised the dominant interpretation of 'transfer' in the education systems as stressing 'the degree to which a behaviour will be repeated in a new situation'. In contrast to this restricted conception, he refers to the concept of *consequential transitions* (Beach 1999) which recognises an extra dynamic in the process, one which must involve the exploration of new territory for which pre-learned response and solutions are unavailable. Consequential transitions involve the construction of new knowledge, identities and skills through transformation (rather than the application or use) of something that has been acquired elsewhere. A transition of this form involves a notion of progress and is best understood as a developmental process. Such transitions may involve changes in identity as well as changes in knowledge and skill. In other words, they are processes that involve the full person and not just learned attributes or techniques.

Conceptualising approaches to work experience

A typology of work experience

Drawing on the theoretical explorations within the TSER project, we outline five different approaches to or *models* of work experience which embody changing responses to policy, to the learner, to skills needed and to pedagogy. This conceptual framework deploys a 'five-by-five matrix'. The horizontal axis identifies five different models of work experience:

1. *The traditional model of work experience: 'launching' students into the world of work.*
2. *The experiential model: work experience as 'co-development'.*
3. *The generic model: work experience as an opportunity for key skill assessment.*
4. *The work process model: a strategy to assist students in 'attuning' to the context of work.*
5. *The connective model: a form of reflexive learning.*

The vertical axis identifies five main features of the models:

1. The purpose of work experience (*ie*, the reason for providing the work experience).
2. The assumptions about learning and development (*ie*, the ideas about pedagogy and learning in workplaces).
3. The practice of work experience (*ie*, the extent to which practice is seen as divorced from context).

4. The role of the education and training provider (*ie*, the pedagogic strategies employed to support students in learning).
5. The outcome of the work experience (*ie*, the form of knowledge, skill or broader capabilities that students have developed).

The first four of the five models reflect the influence of different economic, technological and social factors prevailing within European countries as well as different ideas about learning and development. Although the models may be specific to different periods of economic and technological development and reflect changing educational ideas about the process of learning, as the final report from the TSER team indicates (Griffiths *et al* forthcoming), they do co-exist in different countries. They are analytical rather than descriptive; no specific work experience programme fits neatly into any of the models and some programmes may contain elements of more than one model. The fifth model presents a new approach to work experience which is based upon the principle of *connectivity* and takes account of the theoretical considerations discussed here. It displays innovatory features which are relevant to future approaches to effective learning through work experience and provides a basis for different explorations (Herlau, Krarup and Rasmussen 2000).

Typology diagram (attached) to be inserted here.

1. The traditional model of work experience: 'launching' students into the world of work

This model reflects the tendency in (i) apprenticeship-based work experience programmes to mould and adapt students' skills in workplaces (Vickers 1995, Stern and Wagner 1999a, 1999b); and (ii) school-based work experience schemes, which were introduced in the UK in the 1970s, to assume that students unconsciously or automatically assimilate relevant workplace knowledge, skills and attitudes and internalise the implications of occupational changes occurring in the workplace (Watts 1983). This emphasis upon both adaptation and assimilation in the traditional model of work experience is a distinctive feature of a technical-rational perspective on education and training. Students engaged in work experience have often been viewed as 'containers' (Lave 1993) into which various forms of social interaction can be 'poured' and it has been assumed that knowledge and skills can be taught quite separately from the context of their use.

These assumptions about learning are consistent with what Kindermann and Skinner (1992) have termed a 'launch' perspective on the relationship between people and their environment. In other words, it is the initial learning situation (school, college or vocational training centre) which largely determines what a person will do in a new situation: the earlier learning determines the trajectory of later learning, with the environmental influence being fairly minimal. Thus, from this perspective, the prime purpose of traditional models of work experience has been to 'launch' students into the world of work

Conceptualising work experience simply as 'launch', however, leaves little incentive to develop a theory of how students learn and develop through work experience (McNamarra 1991, Granville 1999) and this has helped to maintain the divisions between formal and informal learning and academic and vocational education (Lasonen and Young 1998).

2. The experiential model: work experience as 'co-development'

This model reflects the view expressed in many American and European approaches that all stages and phases of education should be made 'relevant' to students and that there should be a more problem-based approach to education and greater use of inquiry-based models of teaching and learning (Prawat 1993).

In the case of work experience programmes, it has resulted in the development of models of work experience which were based on a version of experiential learning. Specifically, Kolb's idea of the experiential 'learning cycle' has been perceived in general education as providing a useful framework for understanding how students learn through work experience (Jamieson *et al* 1988, Miller *et al* 1991). One consequence of adopting this slightly broader perspective on work experience was that it placed the idea of a student's interpersonal and social development at the forefront of the agenda for work experience (Miller *et al* 1991, Stern and Wagner 1999; Wellington 1993).

These attempts to take more explicit account of the *actual* trajectory of a student's development resulted in greater dialogue and cooperation between education and workplaces. In many ways, they reflect Kindermann's and Skinner's notion of 'co-development' between interested parties (1992). This led to greater interest being displayed in ensuring that work experience took greater account of two issues in particular. The first issue was the need for educational institutions or intermediary agencies, such as education-business partnerships, to negotiate clear objectives for students, workplaces and schools/colleges in advance of the work experience (Griffiths *et al* 1992, Miller *et al* 1991). The second issue was the development of new pedagogic practices to assist students in identifying, possibly through the use of a de-briefing process after the work experience, the influence of the experience on personal and social development (Watts 1991).

Despite these pioneering developments, the *mainstream curriculum* in most EU countries was left broadly unaffected, with work experience effectively kept separate from it. Equally, the whole question of the relationship between theoretical study and work experience, even in countries with strong apprenticeship systems, was also left unresolved (Griffiths and Guile 1999).

3. The generic model: work experience as an opportunity for key skill assessment

One of the main educational debates in Europe in the late 1980s and early 1990s concerned the attempt to promote a greater sense of learner autonomy and self-discipline, particularly in low-attaining students, within general and vocational education programmes (Green *et al* 1999). These developments have led, in the UK in particular and, to a lesser extent, in other parts of Europe, to the emergence of what may be referred to as a 'generic' perspective on learning. By and large, this perspective is based on the idea that it is, first, more liberalising and egalitarian to adopt a system which attaches prime importance to the 'outcome', the result, and does not prescribe the form of learning necessary to gain a qualification (Jessup 1990). Second, it reflects the idea that an agreed series of common outcomes can be identified for any programme of study and on that basis it is possible to assess the learning that has occurred (Kamarainen and Streumer 1998). Despite being subject to considerable criticism about their behaviouristic (Ecclestone 1998) and mechanistic (Jones and Moore 1995) assumptions about learning, 'learning outcomes' have gradually become a feature of many work experience programmes.

In the case of work experience, the emphasis on student-centredness and learner-autonomy has been interpreted as planning a work experience placement and managing and evaluating the learning through the use of statements about 'learning outcomes' which are a part of a personal action plan (Miller 1996, Oates and Fettes 1997). The plan serves as a type of contract between the individual, the workplace and the educational institution, thus facilitating student self-assessment and external verification of key skill development within a workplace.

The idea of teacher/trainer-facilitated reflection, however, is problematic (Usher *et al* 1997). It rests on the assumptions (i) that 'experiential learning' is a natural category and (ii) that the 'voice' of an individual or community constitutes in some way authentic knowledge of a situation. As Moore and Muller (1999) argue, the idea of 'experiential learning' and 'voice discourses' are themselves endowed with theoretical assumptions. Accordingly, the meaning and significance of experience depends not only upon the experience as such but also on how and by whom it is interpreted (Brah and Hoy 1989).

By playing down the need for those in education or workplaces with responsibility for supporting the process of learning to explore with learners the extent to which experience is influenced by the constraints of its context, the generic model of learning has failed to accommodate the fact that leaners have to be immersed in *ideas* as well as in the world of *experience*. For example, using a scientific concept in a practical situation involves resituating it in a firm which fits the context (Guile and Young forthcoming). This is not a process of logical reasoning but rather of 'mulling over' the situation until 'something seems to fit' (Eraut 1999). It relies on the *process of mediation* being carefully managed to ensure that learners develop the basis for connecting their context-specific learning with ideas or practices which may have originated outside those contexts.

4. The work process model

One response to the classic problem of division between formal and informal learning that the other models have failed to address satisfactorily has emerged from within the German VET tradition. The concept of 'work process knowledge' - understanding the labour process in terms of product-related, labour organisational, social ecological and systems-related dimensions - has been introduced to assist apprentices and teachers in overcoming the dilemma of 'inert knowledge', that is, knowledge which has been taught but has not proved useful in practice (Kruse 1996).

The main distinguishing feature of the concept of 'work process knowledge' is that it draws attention to the combination of theoretical and practical learning which prepares apprentices to engage more rapidly with new organisational forms of production and enables them to move into alternative work environments more easily (Fischer and Stuber 1998).

The prime purpose of work experience, from this perspective, is to help students *attune* themselves more successfully to the changing context of work through the opportunity to participate in different communities of practice. The idea of 'attunement' recognises that the development of any individual is affected by the task or activities which he or she is asked to undertake in a specific context and that the context, in turn, is also affected by their development (Kindermann and Skinner 1992).

It has been noted, however, that work experience will not by itself promote work process knowledge and that it needs to be *mediated* - perhaps by the introduction of concepts, perhaps by subject knowledge, and that the process of mediation may take place within the workplace and company-training centres (Attwell and Jennes 1996). Thus, Attwell and Jennes conclude, in relation to the German VET programmes, that these programmes will have to be further evolved to help students connect formal and informal learning more explicitly.

5. The connective model

This model of work experience is based upon the idea of a 'reflexive' theory of learning (Guile 2001) which involves taking greater account of the influence of the context and the organisation of work upon student learning and development, the situated nature of that learning and the scope for developing 'boundary crossing' skills. It also entails developing new curriculum frameworks which enable students to relate formal and informal, horizontal and vertical learning.

The term, *connectivity*, defines the purpose of the pedagogic approach which would be required in order to take explicit account of the vertical and horizontal development of learning. Supporting students to understand the significance of these two dimensions of development constitutes a pedagogic challenge, albeit a rewarding one, for teachers in educational institutions as well as those with responsibility for development in the workplace. It involves encouraging students to understand workplaces as a series of 'interconnected activity systems' (Engeström forthcoming) which consists of a range of 'communities of practice' (Lave and Wenger 1991, Wenger 1998) and 'distributed resources' (Hutchins 1997). In addition, it involves teachers and workplaces appreciating that work experience provides a range of very different ways of learning, compared with how students normally learn in school (Guile and Young forthcoming).

Consequently, learners, teachers and workplaces need to ensure that work experience, first, provides an opportunity for learners to 'learn to negotiate how they learn' in workplaces, since this is critical to effective workplace performance (Beach and Vyas 1998), as well as to learn the new capabilities that are gradually being required in 'high-performance' workplaces (Guile and Fonda 1999). Second, they need to support learners to appropriate concepts acquired through vertical development, and which are external to the context, and to mediate the relationship between their formal programmes of study and, for example, trends in labour and work organisation. Thus, learners not only have to develop the capacity to participate within workplace activities and cultures; they must also learn how to draw upon their formal learning and use it to interrogate workplace practices. Eraut (1999) suggests that this could involve: use of prior knowledge, seeing the relevance of concepts, resituating the concepts and integrating the new knowledge. These ideas about learning through work experience imply a reappraisal of human resource development strategies, as well as management and developmental practices, by 'host' organisations and of pedagogic practice by teachers, since students and workers have to learn how to enter unfamiliar territory and work collaboratively in different communities of practice.

One of the most significant implications of this re-conceptualisation of work experience is evident in relation to the question of the 'transfer of learning'. Instead of viewing transfer as a matter of reapplying the knowledge and skill acquired in one context (a workplace) into another context (another workplace), it becomes more helpful to view transfer as a process of 'boundary crossing' (Beach 1999; Engeström and Terrtu-Grommi forthcoming). This reflects the recognition that students are likely to be engaged in a variety of different tasks and in different contexts and thus may come to demonstrate what Reder (1993) has referred to as 'polycontextual skills'. Such an approach takes account of the fact that learning is a process both of self-organisation and enculturation (Cobb 1999) and that these processes occur while individuals participate in cultural practices, frequently while interacting with more knowledgeable others in the workplace 'zone of proximal development'.

At one level, learning through work experience calls for the formation of new mediating concepts' which assist learners in developing the forms of social interaction that support dialogic problem solving (Guile and Griffiths forthcoming). At another level, it involves learners in functioning as 'connective specialists' (Young 1998), using specialist knowledge and skill acquired in formal education to understand why certain types of performance are required in different work contexts and how to work with others to produce new knowledge. Thus, teaching and learning become more a product and process of interaction within and between contexts and the successful mediation of these relationships is based upon a recognition that learning involves the *negotiation of learning* as part of actual workplace experience.

Innovative practice in work experience

The idea of work experience as a form of practice

As the typology indicates, the concept of *practice* is central to understanding the learning and development that occurs through work experience. The idea of practice provides a way of analysing human cognition and development as an integral part of a larger system. It has a long and distinguished history in the social sciences (Bourdieu 1977, Wenger 1998) and is inextricably bound up with the idea of learning. Certainly, many accounts of practice emanating from cognitive psychology have stressed that one of its central features is the cognitive ability to acquire facts, knowledge, problem-solving strategies or metacognitive skills, while sociological accounts have tended to stress immersion in *habitas,* that is, cultural codes and conventions (Bourdieu 1977).

Recent work in socio-cultural learning theory, in particular, Activity Theory (Engeström forthcoming) and Situated Learning (Lave 1993, Lave and Wenger 1991, Hutchins 1995, Wenger 1998) has suggested, however, that it more helpful to view practice in relational terms. To begin with, this avoids treating the concept of practice and the context in which the practice is situated separately and allows both the macro-structural and personal process of construction to be taken into account (Lave 1993). Moreover, the development of practice is not simply a matter of solving problems through the application of cognitive skill; rather, it involves learning how to use the 'resources', which may reside in or be distributed across different contexts to develop understanding, identity, new knowledge and, ultimately, to transform practice (Hutchins 1997).

By specifically eschewing the assumption that students engaged in different forms of work-based practice can be viewed as 'containers' to be filled-up with relevant knowledge and skill (Lave 1993), it is possible to avoid assuming that the social practice in which students become involved *automatically* enables them either to assimilate relevant workplace knowledge, skills and attitudes or to internalise the implications of occupational changes occurring in the workplace, adapt to the 'world of work' and develop an occupational identity (Guile and Griffiths forthcoming). Further, a cautionary note is needed: namely, that mastery of a practice may not be possible solely through participating in that practice (Lemke 1997). It may be that full 'membership' entails participating in another 'community of practice' in order to be counted as having mastered the practices of the first community.

In the light of the above considerations and working from the insights of Engeström, Lave and Hutchins about practice, it is important to distinguish between the *forms* of practice, the *meaning* of practice and the *historically constructed* basis of practice. *Forms* of practice relate to the different types of vocational/professional practice (*ie,* 'communities of practice') in which students might participate, pedagogic practices which support learning through work experience and the forms of practice associated with different activity systems, which in turn help to shape the division of labour and rules which students encounter in workplaces. The *meaning of practice* reflects the idea that any form of practice has to be meaningful: (i) in terms of the activity system in which the practice is situated and (ii) for the individuals who are engaged in the practice. In the case of the *historically constructed* basis of practice, it is important to remain sensitive to the fact that all forms of practice are historically constructed activities which are constantly evolving and changing.

These distinctions alert us to the important relationship that exists between the context of education and the context of work. The Lave argument about learning stresses that mastery of practice is acquired by participating in specific forms of practice. However, as Lemke (1997) has observed, sometimes even full participation in practice is insufficient by itself to achieve full membership and understanding of that practice. For example, participation in the activities, rituals, *etc.* does not necessarily by itself reveal the esoteric meaning of practice. Sometimes, people have to be 'schooled' in the mysteries of practice, use formal education to explore the changing historical significance of practice in order both to be accepted as a member of a 'community of practice' and to develop the confidence to perform as a member of that community.

Because practices involve learning how to perform in different contexts, it is also important to bear in mind the earlier distinction between different interpretations of the concept of context in relation to work experience. One interpretation defined context as a pre-given object or condition or set of objects or conditions (with three different aspects: the organisational context, the production context and the changes occurring within context). The other interpretation reflected the idea that work and education are contexts *through which* students can learn and develop (Guile and Griffiths forthcoming). This distinction can be used help students appreciate that the meaningful actions in which people engage have what Lemke refers to as, 'meanings of relations to one another in terms of a cultural system'. In other words, membership of a community of practice involves not only learning how to perform in one context but also what the performance means and how it might relate to other aspects of social or cultural life. We explore the significance of these issues in the Case Study below.

The Connective Model of Work Experience

The Connective Model of Work Experience is an attempt to formulate a model of work experience which does not restrict the focus of learning to the individual, seeking simply to identify development by describing the individual's response to external stimuli. The Connective Model conceives the relation between people and the environment in terms of the complex processes of entrainment, coordination and resonance which characterise the interplay between practical activities in cultural contexts. The following Case Study helps to illustrate the principles of the Connective Model of Work Experience by exploring the practice of work experience in relation to the context where it takes place. In drafting the Case Study, we have endeavoured to identify the following four assumptions of 'connectivity'. They are, first, that learning entails engaging in some from of *activity* that takes place in historically constructed social situations (Engeström forthcoming). The second is that the process of learning takes place in a mediated activity which occurs in a *zone of proximal development* (Vygotsky 1978). The third is the *situated* basis of learning (Lave and Wenger 1991). The fourth is that cognition is *distributed* across contexts (Hutchins 1997).

Case Study
East Berkshire Further Education (FE) College and Legoland (Windsor)

Background

In common with many other colleges of further education in England wanting to enhance the GNVQ framework though the provision of work experience, the Media Faculty at East Berkshire College attempted to use work experience to overcome the perceived limitations of the GNVQ framework (Helsby *et al* 1999, Hyland 1994; Hodkinson and Mattison 1995).

The Faculty is committed to providing students with a holistic curriculum which includes work experience. As a consequence, business partners have been identified who are prepared to work collaboratively with them and 'host' planned programmes of work experience. One of these partnerships is with Legoland.

The main aims of the partnership are to:

provide GNVQ Media students with the opportunity to develop their skills as journalists, as well as their practical media-based skills;

provide an insight into the ever-increasing application of media-based knowledge and skill within modern workplaces;

develop the capabilities of students to work in different organisational contexts (*ie*, as 'boundary-crossers') and thus support their future employability.

The practice of work experience

The work experience involves students producing Legoland's Staff Newsletter. This newsletter is produced on a monthly basis and is distributed to all the full and part-time staff who work for Legoland. The work experience programme recurs throughout the year and this allows different cohorts of GNVQ Media students to produce each newsletter.

Producing the Newsletter not only involves students in researching and writing all the copy; they also have to learn how to work within Legoland's corporate guidelines in order to design the final layout. Working on the Legoland site involves students developing their skills as 'investigative' journalists through talking to staff at all levels and identifying possible 'human-interest' 'storylines' for the forthcoming newsletter.

Producing the newsletter means that students need to have access to the College's own internal Information and Communication Technology resources and involves liaising with staff in the Media Centre and at Legoland. Such contacts are invaluable in assisting students continually to improve their practical media-based skills and so enhance the design and layout of the newsletter so that it conforms to the publications criteria pre-set by the company.

Mediating transitions

The rotation arrangements which underpin the production of the newsletter enable a significant percentage of the GNVQ Media cohort to experience some form of 'consequential transition' (Beach 1999) by continually crossing the boundary between school and college and taking responsibility for varying their performance between two work contexts which are constantly evolving.

Developing this level of maturity can sometimes be quite painful. Some students report that it is much more daunting when Legoland's staff point out the limitations of their work (*eg*, in relation to the content and layout of the newsletter) than it is when College staff make similar observations. Although the zone of proximal development that characterises the student-teacher relationship can be fraught with tensions, it still provides a space for students to 'fail' since it is accepted that their identity and expertise are constantly changing and developing. In contrast, once students enter Legoland, they are subject to the same type of demands that the company would place upon full-time staff and thus perceive that they are no longer in the comfort zone of 'failing honourably'.

Mediating learning

The process of mediation is supported through teachers encouraging students to apply the theoretical concepts and the technical skills that they have acquired through the formal component of their GNVQ programme in order to produce the newsletter. For example, each cohort of students is encouraged in tutorials to draw on their understanding of the idea of 'target audience', 'register and tone' and 'sequencing' of 'storylines' in order to draft copy that approximates to copy produced by a professional journalist.

One of the main ways in which students develop a more 'connective' perspective on the relationship between their formal and informal learning is by treating the production of the newsletter as though it were a 'core occupational problem' (Onstenk forthcoming). In other words, this would be the type of problem which might provide ideas as to how to tackle similar problems in future. Staff feel that this provides a spur for students to look beyond current practice and helps them shape how such problems could indeed be tackled in future.

Having opportunities to apply their conceptual knowledge to explain changes in journalistic practice is crucial and assists students in understanding the meaning of, for example, the practice of a journalist and in developing new knowledge about how the media industry or journalistic practice may change in the future. This provides students with a much stronger conceptual framework for developing the written assignments to be presented as part of their GNVQ Portfolios.

Working at Legoland has placed students in a position where they have to learn how to accept responsibility for their own actions as well as for the decisions they make when contributing to the production of the newsletter. Thus, in order to gain maximum benefit from the work experience, students have to demonstrate that they can respond positively to feedback about the need to redraft their own text or to amend their layouts in order to improve the quality of the newsletter. In this sense, they are modelling aspects of the practices associated with the role of 'student' and 'trainee journalist'.

Students do not achieve this level of self-development and personal autonomy simply through their own capacity for autonomous self-directed learning or 'learning-by-doing'. Staff at Legoland and the College have to collaborate in order to provide a supportive context, while students have to learn how to use effectively the learning resources (*ie,* mediating artefacts) which are distributed across two sites and which help to structure their learning. The learning and development which therefore occurs as a result of students moving from one context to another (*ie,* 'horizontal development') arises from the complex interplay between the students' performance and the 'environment for learning' created by the Media Faculty and Legoland.

Creating environments for learning

One important element of this 'environment' is ensuring the students have access to a 'learning curriculum' (Lave and Wenger 1991). This concept emphasises that access to certain resources (such as people, networks technology) are an invaluable part of assisting students to become effective members of a 'community of practice', capable of developing greater degrees of independence. By providing students with access to the work site and the professional expertise of their Press Relations personnel, Legoland has recognised that 'hosting' a work experience involves staff actively in providing opportunities for students to observe best practice and to discuss and try out new practices with those members of the 'community of practice' which they have temporarily joined.

Unless students have access to a 'learning curriculum', it is very difficult for them to develop the capability to use the College and Legoland as dual 'sites' (*ie*, contexts) for learning. The opportunities to research, write and design an authentic media product in an environment not only provides them with a very effective simulation of the conditions they are likely to encounter once they leave College and take up full-time employment, either in the media industry or elsewhere; it also enables them to talk to and socialise with a diverse range of Legoland employees and thus enrich their grasp of the changing and uncertain nature of the practice of media work. In this sense, the actual experience of producing an authentic media 'product' helps students to develop 'work-process' knowledge,

Conclusion: the implications of designing and delivering the Connective Model

Supporting students to adopt a more 'reflexive' and 'connective' stance towards the relationship between their work experience and their formal study sets different challenges for educational institutions, companies and students themselves.

Educational institutions have to persuade companies to provide students with opportunities to participate in different 'communities of practice'. In the case of East Berkshire College's partnership with Legoland, the Media Faculty had to ensure that students would be able to work alongside members of Legoland's Publicity and Corporate Relations department, Site Management *etc.* so that they could acquire the information and develop the expertise necessary to produce the Newsletter.

As a consequence, Legoland, as the 'host' organisation, had to ensure that staff who were supporting students' 'boundary crossing' activities were: setting students stretching, but not unachievable, tasks; encouraging them to ask questions about work practices; and giving constructive feedback about their performance. This, in turn, involved Legoland's own line managers in accepting responsibility for creating an environment which brought forth added value from all students as well as their own staff.

Educational institutions also have to be prepared to interrogate their own work practices. For example, having encouraged students to view all workplaces as a series of 'interconnected activity systems' consisting of a range of 'communities of practice', the Media Faculty recognised that it also had to respond positively to feedback from students about perceived deficiencies in the design and delivery of the College components of the work experience. This, ultimately, led them to re-think the relationship between learning processes which had been designed to support 'sequential' learning (*ie,* aspects of practice) and those designed to support 'conceptual' learning (*ie,* focusing on the relationship between practice and context). For example, the Media Faculty:

modified the delivery of certain GNVQ units to ensure that key parts of the programme were introduced before the students undertook work experience;

broadened the focus of tutorials *to consolidate the link* between different types of learning and ensure that core skill development was monitored and evidence of attainment recorded in students' Records of Achievement.

Supporting students to develop a more 'connective' approach to their formal and informal learning led College staff and line managers to recognise that they shared some pedagogic aims. They recognised that they had different, but complementary approaches in supporting students to:

recontextualise the activities they undertook in College and on site at Legoland and see them as a part of a whole;

use their developing intellectual capabilities to criticise existing knowledge and practice and begin to conceive alternatives;

apply what they knew and be confident about performing in new situations;

connect knowledge and performance to the knowledge of other specialists in educational institutions and workplaces.

Achieving these pedagogic aims, however, involved students taking the initiative and being prepared to 'learn-on-the-fly' (Beach and Vyas 1999) in Legoland and in the College. Initially, this involved developing the confidence to make requests for help from people whom they did not know. Subsequently, students began to ask themselves the following types of questions:

How do I use the knowledge and skill I feel that I have gained to support my 'practice' as a journalist/as a producer of a newsletter/as a vocational student?

What have I discovered about myself as a learner as a result of undertaking simultaneously a wide range of tasks?

Asking such questions led the students to recognise that learning entailed some form of self-organisation and enculturation and, moreover, that these processes occured more readily if they were able to:

participate in different but related cultural practices, for example, journalism and the theory of journalism;

(Encouraging students to conceptualise their experiences in different ways and for this conceptualisation to serve different curriculum purposes, sets a new pedagogic challenge for teachers. In many ways, it is very similiar in intention to what Freire (Freire and Macedo 1999) has referred to as the task of creating new 'pedagogical spaces', in other words, the use which teachers (in education or workplaces) make of their expertise to pose problems in order to help learners analyse their own experiences and arrive at a critical understanding of their reality.)

develop new ways of mediating their understanding of the forms of social interaction that supported dialogic problem solving.

The changing context of work and the future of work experience

Current context and future practice

The context of work has undergone fundamental changes over the last 20 years. One of the challenges facing companies throughout Europe is the question of diversity and dialogue within and between the contexts of education and work. This challenge has partly arisen as a result of the process of globalisation and partly through the introduction of lifelong learning policies in an attempt to prepare and update people for a continuously changing world of work (Guile forthcoming). At one level, globalisation has meant greater mobility in the labour market and hence greater inter-cultural diversity in the workplace. At another level, it has had an uneven impact upon European companies. Some are striving to become high-performance companies and hence are actively engaged in transforming product and service delivery through developing 'knowledge-intensive' forms of work. Other companies are content to continue offering 'low added value' products and services.

The cumulative effect of these developments suggests that new conceptual 'tools' should be developed to assist learners who are undertaking programmes of work experience so that they may both understand the evolving forms of work practice, and the types of dialogue encountered in workplaces and education, and develop perspectives on the diverse activities in which they are engaged.

By focusing on the relationship between the *practice* of work experience and *context* of work, the Connective Model of Work Experience has allowed new questions to be asked about how students learn, when participating in a work experience programme:

to understand and use the potential of subjects as conceptual tools for linking their workplace experience to their programmes of study and thus seeing it as part of a whole;

to develop an intellectual basis for criticising existing work practices and take responsibility for working with others to conceive alternatives;

to develop the capability to resituate existing knowledge and skill in new contexts as well as being able to contribute to the development of new knowledge, new social practices and new intellectual debates;

to become confident about crossing organisational boundaries or the boundaries between different, and often distributed, 'communities of practice'; and to connect their knowledge to the knowledge of other specialists, whether in educational institutions, workplaces or the wider community.

Although important insights have been generated about how to address these questions, the questions themselves have not yet been fully answered. This suggests that further work will have to be undertaken if the 'connective' model of work experience is to be developed in such a way as to realise its ambitions.

Recent work from Engeström and Hutchins has offered two promising clues about how to develop the Connective Model. In a paper discussing the 'third generation' of activity theory, Engeström suggests that the next step is to develop a theoretical framework that allows different activity systems to communicate more effectively with one another through the creation of a 'new shared object'. By this, he means constantly maintaining a horizon of possiblilities in order both to scrutinise and incorporate new ideas or forms of practice which may originate outside the immediate context as well as to generate new practice from within a specific context. Such activity is, he suggests, most productive when conducted within the area of the 'shared object'.

Hutchins, however, has drawn attention to the significance of the process of 'metamediation'. He employs this term to illustrate that 'learning curricula' or 'mediating artefacts' do not just stand between people and the context in which they are working. They are one of many elements that can be called upon in the performance of a task or to support understanding about a subject. This leads Hutchins to stress that mediation is not a process that automatically occurs in a single direction, in other words, from a teacher to a student or from a computer to a student. He argues that certain mediating artefacts help to organise the use of other mediating artefacts and it is this process of metamediation that makes for a powerful learning experience. For example, in the case of the GNVQ Media students, access to the Legoland site mediated, amongst other things, their understanding of the practice of media work and the relevance of formal study.

There are, many senses in which the ideas of 'new shared objects' and 'metamediation' may be relevant in developing the Connective Model of work experience. For example, they could encourage educational institutions and workplaces to:

identify what may be the 'shared object' arising from analysis of the different contexts of learning – as part of the process of effective mediation;

thus, explore how work experience may enable different activity systems to 'talk to each other' about common goals more effectively;

enable teachers and Human Resource Development personnel to develop a shared understanding about the relationship between formal and informal learning and the pedagogic strategies which support learners in relating these forms of learning to produce new knowledge (and hence equip them as 'boundary crossers');

support learners to use work experience to develop a *transformative* rather than an *informative* perspective about different types of social practice.

These and other questions will be addressed further in work to develop the Connective Model and in explorations with other research projects where the testing of the Model in new studies and situations may yield further insights.

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References

Attwell, G. and Jennes, A. (1996) *Work process knowledge and new forms of development of professionals for Vocational Education and Training*, Paper at Third Work Process Knowledge Meeting, Bremen, Dec. 12-14

Beach, K. (1999) 'Consequential Transitions: a sociocultural expedition beyond transfer in education', *Journal of the Learning Sciences*

Beach, K. and Vyas, S. (1998) *Light Pickles and Heavy Mustard: Horizontal development among students negotiating how to learn in a production activity*, paper presented at the Fourth Conference of the International Society for Cultural research and Activity Theory, University of Aarhus, Denmark.

Bourdieu, P. (1977) *Outline of a Theory of Practice*, Cambridge: CUP

Brah, A. and Hoy, J. (1989) 'Experiential learning: A new orthodoxy' Weil, S.W. and McGill, I., eds., *Making sense of experiential learning* Milton Keynes: SRHE/Open University Press

Cobb, P. (1999) 'Where is the Mind?' in Murphy, P. (ed.) *Learners, Learning and assessment*, London: Sage Publications

Cole, M. (1995) 'The Supra-Individual Envelope of Development: Activity and Practice, Situation and Context' in Goodnow, J.J., Miller, P. and Kessel, F. (eds) *Cultural practices as contexts for development* San Francisco: Jossey Bass

Dewey, J. (1988) 'The Quest for Certainty' in Boydston, J.A.,ed. *John Dewey: the Later Works 1925-1953, Vol 4* Carbonadale: Southern University Press

Dewey, J. (1986) 'Logic. The Theory of Inquiry' in Boydstone, J.A., ed. *John Dewey: the Later Works, 1925-1953, Vol 12* Carbonadale: Southern University Press

Dewey, J. (1981) 'Experience and nature' in Boydstone, J.A., ed. *John Dewey: the Later Works, 1925-1953, Vol 1* Carbonadale: Southern University Press

Ecclestone, K. (1998) 'Empowering or Ensnaring? The Implications of Outcomes-Based Assessment' in *Higher Education Quarterly*, 53, 1 pp. 29-49

Engeström, Y (forthcoming) *Expansive Learning at Work: Toward an activity-theoretical reconceptualisation.*

Engeström, Y (1996a) 'Development as breaking away and opening up: A challenge to Vygotsky and Piaget', *Swiss Journal of Psychology*, 55 126-132

Engeström, Y. (1996b) 'Developmental work research as educational research', *Nordisk pedagogik*, Vol 16 131-143

Engeström, Y. (1995) Training for Change, International Labour Office: London

Engeström, Y. and Gronin, T. (forthcoming) *Transfer and Boundary Crossing.*

Engeström, Y., Virkkunen, J., Helle, M., Pihlaja, J. and Poikela, R. (1996) 'Change laboratory as a tool for transforming work', *Lifelong Learning in Europe*, Vol 1 No 2 10-17

Engeström, Y., Engeström, R., and Karkkainen, M. (1995) 'Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities' *Learning and Instruction* 5. 1. pp. 319-366

Eraut, M. (1999) Learning in the workplace – a framework for analysis. Paper presented at the EARLI Conference on Working and Learning.

Fischer, M. and Stuber, F. (1998) 'Work process knowledge and school-to-work transition' in Scherer, E., ed. *Shop Floor Control: A Systems Perspective* Berlin: Springer Verlag

Friere, P. and Macedo, D.P. (1999) 'Pedagogy, Culture, Language and Race: A dialogue' in Leach, J. and Moon, B. (eds.) *Learners and Pedagogy*, London: Sage Publications

Ghererdi, S., Nicolini, D. and Odella, F. (1998) 'Towards a social understanding of how people learn in organisations: the notion of a situated curriculum', in *Management Learning*, 20. 2.

Granville, G. (1999) Report of the LCVP Research and Evaluation Project, National College of Art and Design, Dublin

Green, A., Leney, T. and Wolf (1999) *Convergence and Divergence in European Education and Training Systems*, London: Bedford Way Papers, Institute of Education, University of London

Griffiths, T. and Guile, D. (1999) 'Pedagogy in work-based contexts', in Mortimore, P., ed., *Understanding pedagogy and its impact on learning*, London: Sage Publications

Griffiths, T. and Marhuenda, F. (forthcoming) 'Interpretation of the relevance of work experience for future-oriented educational strategies as a challenge for research' in *Qualifications, Competences and Learning Environments for the Future: European Reference Publication*, Thessaloniki: CEDEFOP

Griffiths, T., Benke, M., Cros, M.J., Gimenèz, E., Guile, D., Marhuenda, F., Masden, T., McKenna, P., Ó Maolmhuire, C., Rasmussen, L.B. (forthcoming) *The Framework Report. Learning through Work Experience: Pedagogy, Policy and Practice.*

Griffiths, T., Guile, D. and Attwell, G. (forthcoming) 'Learning through work experience: the development of policy'

Griffiths, T, Miller, A and Peffers, J, eds. (1992*) European Work Experience: Principles and Practice*, Centre for Education and Industry: University of Warwick,

Guile, D. (forthcoming) *Work, Organisational Change and Work Experience: the question of employability within the European Labour Market*

Guile, D. (2001) Education and the economy: re-thinking the question of learning for the 'knowledge' era, *Futures*, Vol 33. No 5.

Guile, D. and Fonda, N. (1999) *Managing Learning for Added Value* London: Institute of Personnel and Development

Guile, D. and Griffiths, T. (forthcoming) 'Learning through work experience', *Journal of Education and Work*

Guile, D. and Young, M.F.D. (forthcoming) *Transfer and transition between education and work: some theoretical questions and issues*

Herlau, H., Krarup, G. and Rasmussen, L.B. (2000) *Innovations in work experience and learning – towards learning organisations and networks* Working paper.

Hutchins (1995) *Cognition in the Wild*, Cambridge, Mass: MIT Press

Jamieson, I., Miller, A. and Watts, A.G. (1988) *Mirrors of Work*, Brighton:Falmer Press

Jessup, G. (1990) *Outcomes: NVQs and the emerging model of education and training* Brighton: Falmer Press

Jones, L. and Moore, R. (1995) 'Appropriating competence: the competency movement, the New Right and 'culture change' project', *British Journal of Education and Work*, 8.2. pp.78-93

Kamarainen, P. and Streumer, J. (1998) Curriculum Development, New learning environments, and transfer of innovations in Europe in CEDEFOP *Vocational Education and Training – the European research field. Background Report* 1998 Vol II CEDEFOP, Thessaloniki, Greece

Kindermann, T. and Skinner, E.A. (1992) 'Modeling environmental development: individual and contextual trajectories' in Asendorpf, J.B. and Valsiner, J., eds., *Stability and change in development* London: Sage

Kruse, R. (1996) *Work process knowledge and quality of vocational training* Paper given at the Third Work Process Knowledge Meeting, Bremen, Dec 12-14

Lasonen, J. and Young, M., eds. (1998) *Strategies for achieving parity of esteem in European upper secondary education*, University of Jyväskylä: Institute for Educational Research

Lave, J. (1993) 'The practice of learning' in Chaiklin, S. and Lave, J., eds. *Understanding Practice: Perspectives on Activity and Context*, London, Cambridge University Press

Lave, J. and Wenger, E. (1991) *Situated Learning*, Cambridge: Cambridge Press

Lemke, J. 'Cognition, Culture and Context': a semiotic perspective (1997)in Kirshner, D. and Whitson, J.A. (eds) Situated Cognition, Social, semiotic and psychological perspectives, Mahwah Erlbaum

McNamara, G. (1991) *Theory and Practice of Transition Education* (unpublished PhD Dissertation), School of Education Studies, Dublin City University, Ireland

Miller, A. (1996) 'To boldly go ... work experience but not as we know it?' in Miller, A. and Forrest, G., eds. *Work experience for the 21st. century,* CEI: University of Warwick

Miller, A., Watts, A.G. and Jamieson, I. (eds.) (1991) *Rethinking Work Experience*, Brighton, Falmer Press

Moore, R. and Muller, J. (1999) 'The Discourse of "Voice" and the Problem of Knowledge Identity in the Sociology of Education' in *British Journal of Education,* 20. 2.189-205.

Oates, T. and Fettes, T. (1997) 'Work experience and key skills' in Forrest, G., (ed.) *Work experience for the 21st. century: changing priorities, changing practice*, CEI: University of Warwick

Prawat, R. (1993) 'The value of ideas', Educational Researcher, *August- September*

Qualifications and Curriculum Authority (1998) *Learning from Work Experience. A guide to successful practice* London: QCA

Reder, S.(1993) 'Watching the flowers grow: polycontextuality and heterochronicity at work' in *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 15, pp 116-125

Stern, D. and Wagner, D. A., ed. (1999a) *International Perspectives on School-to-Work Transition* Cresskill N. J., USA: , Hampton Press

Stern, D. and Wagner, D.A. (1999b) 'School-to-Work Polices in Industrialised Countries as responses to Push and Pull' in Stern, D. and Wagner, D. A. *International Perspectives on School-to-Work Transition* Cresskill N. J. USA: Hampton Press

Usher, R., Bryant, I. and Johnston, R. (1997) *Adult Education and the Post-Modern Challenge*, London: Routledge

Vickers, M. (1995) 'Employer Participation in School-to-Work Programmes: The Changing Situation in Europe' in Bailey, T., ed. *Learning to Work: Employer participation in school-to-work programmes* Washington, DC: Brookings Institute

Vygotsky, L. (1978) *Mind in Society The development of higher mental processes* Cambridge MA: Harvard University Press

Watts, A.G. (1991) 'The concept of work experience' in Miller, A., Watts, A.G. and Jamieson, I., eds. *Rethinking Work Experience*, Brighton: Falmer Press

Watts, A.G. (1983) *Work Experience and Schools*, London, Heinnemann

Wellington, J. (1993) *The Work Related Curriculum*, London, Kogan Page

Wenger, E. (1998) *Communities of Practice: Learning, Meaning and Identity*, Cambridge University Press

Wertsch, J.V. (1981) *The concept of activity in Soviet psychology*, Armonk, New

Young, M.F.D. (1998) *The Curriculum of the Future,* London, Falmer Press

ALTERNANCE AND WORKPLACE TRAINING: INTERNS' EXPERIENCES

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ALTERNANCE AND WORKPLACE TRAINING: INTERNS' EXPERIENCES

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Abstract: Work-based training is studied via qualitative interviews with 25 students in four vocational training programs, who were met first in school, then in the workplace. Following a description of the internship periods undergone by the students, the process of work-based training is analyzed. The progression of internships and learnings, as described, demonstrates that the activities assigned to the students have enabled them to increase their knowledge and begin their integration into the labor market. The study also examines the students' development at the hands of their mentor and other employees, highlighting the difficulties they encounter.

Introduction [1]

In Quebec, as in a number of other jurisdictions, work-based training occupies an increasingly important place in the education of students pursuing a vocational or technical diploma. Here we present an analysis of the experiences of students involved in training administered alternately at school and in the workplace. Following an overview of the problematic and the frame of reference guiding our work, we describe the methodology we employed, as well as the characteristics of the students we met. The alternance training model, as it is applied in Quebec, and the characteristics of students' internships are also identified. We then proceed to an analysis of the work-based training process, separate from the students' testimonials. Finally, we examine the training relations that have been woven among the student, his or her mentor in the workplace, the other employees and the teacher at school. We conclude by highlighting some of the difficulties encountered by the students.

1. Problem statement and theoretical framework

The necessity of better links between academic education and demands for qualified labor has prompted experimentation with various forms of school-workplace partnership in vocational education. These partnerships have allowed for the delivery of *alternance training*, *cooperative education* and *work-based learning*. Studies into such work-based training experiments have mainly examined the perspectives of teachers (Gérard, 1999; Monod, 1999) or workplace mentors (Agulhon & Lechaux, 1996; Geslin & Liétard, 1993). Having ourselves already analyzed the experiences of school administrators (Hardy & Parent, 1998) and of mentors (Hardy & Parent, 1999b), as well as of teachers and mentors involved in supervising students (Hardy & Parent, 1999a), we now seek to understand the experiences of student interns involved in such vocational high-school education. This includes several internships, wherein the educational periods in the workplace are alternated with periods of vocational training dispensed in the school environment. Our research question is as follows: What are the characteristics of the learning process of students involved in alternance training or work-based learning?

The chosen framework of reference allows for the examination of students' views on their work-based training experience, as well as on their relations with their mentor in the workplace, the other employees

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and their teachers. This investigation is inspired mainly by the work of Evanciew & Rojewski (1999), Lechaux (1995), Stasz & Kaganoff (1997) and Stasz (1998), who studied, on the basis of interviews, the experiences of students involved in youth apprenticeship, alternance training or work-based learning programs. The present analysis also draws on the work of Grubb & Villeneuve (1995) and that of Lasonen (1999), wherein the authors investigate the advantages of work-based learning for students. Our analysis concentrates on the modes of actualization of students' work-based learning process, on students' self-evaluation with respect to difficulties encountered and learnings acquired in the workplace, as well as their workplace training relations with their mentor, the employees and their teachers.

2. Methodology

This study involving the vocational training students is part of a research project into school-workplace collaboration in secondary education, wherein we utilize a case-study approach in the spirit of Stake (1995). The cases studied or the units of analysis in this research project are study programs. In the current analysis, we focus our attention on curricula involving alternating periods in the workplace. These specific programs are taught in three Vocational Training Centers located on the Island of Montreal. We analyze the viewpoints of 25 students, broken down as follows into one of four vocational high-school education programs[2]: Drafting (n=8), Modeling (n=7), Jewelry-Making (n=6) and Office Skills (n=4). Each of these 25 students granted us an initial interview of 30 minutes during the penultimate month of their school-based studies, and a second interview of 15 minutes during the second part of their last internship in the workplace. The recorded interviews were transcribed, then coded and processed using NUD*IST[3] software.

3. Characteristics of the students

Gender representation varies according to the study program. Two-fifths of the students are women (n=10) and three fifths are men (n=15); however, the women are enrolled in office skills (F, n=4) and jewelry-making (F, n=5), while the men are to be found in drafting (H, n=7) and modeling (H, n=7). A ten-year age gap separates the youngest from the oldest within the group, the average age being 28.3 years. The jewelry-making students are aged, on average, 23.2 years, whereas those in modeling are, on average, 33.3 years old. Between these two groups are the drafting students, with a mean age of 26.4, and the secretarial students, with a mean age of 30.5. The average age of these students is slightly above the provincial average for Quebec students, which currently sits at 27 years. This figure can be attributed to educational policies in place since 1988, which integrate youths and adults in the same vocational classes, in order to offer a wider variety of programs and maximize returns on investments in equipment for workshop classes.

Prior education is relatively homogeneous in three of the four programs. At the time of their enrollment, four-fifths of the students (n=20) already possessed a diploma of general (n=17) or vocational (n=3) studies. The other fifth, concentrated in modeling (n=4), had completed college (n=2) or university (n=1) studies, or held no diploma at all (n=2). More than a quarter of the students (n=6) had also interrupted other college or technical studies. Half of these students were finishing studies in drafting (n=3). Over a third of these graduates (n=9/25 or 36%) had thus returned to pursue vocational high-school studies after having abandoned (n=6) or completed (n=3) college or university studies. As for work experience, the majority (n=24) had acquired it through full-time employment (n=19). The average duration of such full-time work was 5.61 years. The spreads in age noted above reflect the average length of work experience for students in each program: those in jewelry-making (1.63 years) and drafting (4.33 years) had significantly less work experience than those in modeling (8.5 years) and office skills (10 years).

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[2] - Drafting prepares students for architectural trades; Modeling offers instruction in the manufacture or modification of wooden, plastic casting or reinforced plastic models, used in the fabrication of molds for metal or plastic casting; Jewelry-Making provides training in jewelry design and creation and Office Skills prepares student for secretarial work.

[3] - The interviews were gathered by Olenka Brynczka, Sophie Grossmann, Pascale Gingras, Danielle Melançon, Pascale Thériault and Louis Trudel; codification was carried out by Olenka Brynczka and Nadine Fortin; Olenka Brynczka, Rita Bissoonauth, Nadine Fortin and Pascale Gingras participated in the preliminary analysis of these interviews, under the authors' supervision.

4. Alternance training model and internship characteristics

Work-based alternance training is at once a pedagogical strategy and a method of organizing vocational education and training. The model applied in Quebec has been mainly inspired by that applied in France. It also shares similarities with the experiences of Co-operative Education, developed in the United States. This alternance training is characterized by the structured combination of periods of training in an educational establishment and internship periods in the workplace, in relation to a curriculum leading to vocational certification (*Direction générale de la formation professionnelle et technique*, 1995a, p.11). Within this general framework, several different forms of alternance may be observed, wherein the number of internship periods may vary from two to four, and the total duration of these internships may range from seven to sixteen weeks. "The principal objectives of alternance are the following: 1) ensure the best learning activities for the student, taking into account the additional possibilities offered by the workplace; 2) progressively integrate the student into the workplace; 3) ensure the best possible performance from the student upon his or her entry into the workforce; 4) increase expertise by combining the knowledge, skills and attitudes connected to both the school and workplace environments; 5) establish the basis of a true partnership between school and workplace; and 6) encourage the establishment of a culture of training within companies" (Idem. p.12). The integration of alternance training within a vocational program may be intended mainly to facilitate the acquisition in the workplace of competencies set by the curriculum, or to transfer competencies already acquired to a real-world setting, as well as to facilitate students' transition from learning to practicing their chosen occupation.

In Quebec, the first experiences of alternance training programs leading to a diploma in vocational education were introduced in 1992. Since then, alternance training programs have developed on a voluntary basis. Between 1992-1993 and 1998-1999, the number of school boards, offering alternance programs to at least one group of students, has nearly doubled from 20 to 39. Now, 54 % (n= 39/72) of school boards in Quebec are engaged in alternance training. The number of programs has also doubled from 25 to 59. Alternance training programs thus embraces 44 % (n= 59/134) of programs leading to a diploma in vocational education. During this period, the number of projects or group of students has nearly tripled from 47 to 130 projects (Henripin 1994; Ministère de l'Éducation 2000a; 2000b). In spite of this important increase and valorization of alternance learning by the educational policies of the Ministry of Education, this approach remains a minority for it encompasses less 10% of students in vocational training.

The application of the alternance training model varies as follows in the four programs studied: the jewelry-making and drafting programs offer four internships of four weeks each, or sixteen weeks of work-based training; the modeling program includes three internships lasting one, two and three weeks, respectively; and the office skills program integrates two four-week internships. The jewelry-making instructors benefit from an agreement with a major jewelry studio in Montreal that accepts the majority of students in this program. The students in this studio realize a project they developed in class. The students in the other programs are dispersed throughout various companies in their industrial sector, where they carry out tasks assigned to them by the accepting company. To these distinctions among the programs are added the particularities of the students themselves. In jewelry-making, 5 of the 6 students completed their internships in the workshop paired with their school, but the number of their respective internships varied from two to four (2 internships, n=2; 3 internships, n=1; 4 internships, n=2). This is largely attributable to the selection made by the instructors, who refer only the best students. The last student was refused by the target studio for security reasons, and was able to complete only one internship in a family-style studio. In drafting, the majority of students (n=5) completed all four scheduled internships with a single company (n=3) or with two or three different companies (n=2). The other students (n=3) completed only two internships with a single organization. In modeling, all the students completed their three internships with three different companies whereas, in the office skills program, all the students completed their two internships, but half (n=2) changed companies for the second one. The organization of work-based internship periods and their duration vary for each program studied. This multiplicity of approaches to applying alternance training in the workplace has also been observed by Brochier, Froment & d'Iribarne (1990) in regard to alternance training in France, and by Stasz & Kaganoff (1997) in the context of work-based learning in the United States.

5. Work-based training process

Four steps are identified in the work-based training process, as reported by the students: 1) preparation for the internship; 2) progression of the internship; 3) self-evaluation of the internship; and 4) vocational plans following the final internship.

5.1 Preparation for the internships

Preparation for the internship includes training received at school, and the search for an internship. The students in all four programs were satisfied with the preparation they received at school prior to their various internships. Nearly half of the students (n=12), however, expressed reservations, stressing the limits of their preparation, to which they attribute certain difficulties they encountered. They note in particular the differences between the tools or instruments they used at school and those that were available to them in the workplace. They would have preferred to have received more exhaustive technical training and more detailed information about what awaited them in the workplace. As for their internship search, the majority of students (n=18) were assisted by the school in securing all of their internships. Several students in the office skills, drafting and modeling programs (n=14) also emphasized the personal initiative they took in approaching organizations.

5.2 Progression of the internships

The progression of each internship begins with the welcome into the organization and is followed by the student's engagement in the internship. During the course of their first internship — as is the case in their final internship — the vast majority of students (n=21) felt warmly received by the people in their internship environment. They particularly appreciated being invited to participate in the work of the company (n=8) and being able to benefit from the availability of personnel to obtain information or assistance (n=9). Whichever the internship in question, the tasks performed by the students were varied and corresponded to the job functions learned in school. They performed secretarial tasks, worked on plans or cartographic sketches, created a piece of jewelry, or were involved in fabricating or repairing molds or masters. All the interns considered their work-based activities to be consistent with their school-based learnings. Almost 7 in 10 students (n=17) further acknowledged that the work assigned to them either was more complex than what they done in school, or corresponded to tasks they had not yet learned. Nevertheless, one third of students (n=9) carried out their assigned tasks with ease, and several (n=7) emphasized the openness of company personnel vis-à-vis questions posed by the interns. These testimonials by the students confirm an earlier analysis conducted with their mentors and teachers, wherein the mentors affirmed that they "direct the intern towards increasingly complex tasks that require participation in productive activity and, according to the case, the use of a variety machines and tools." (Hardy & Parent, 1999a, p. 12)

5.3 Self-evaluation of the internship

In evaluating their internships, the students spoke of the difficulties they encountered and the learnings they acquired. With respect to difficulties, the majority of students (n=20) experienced negative aspects in one or another of their internship periods. During their initial internships, they mainly noted a lack of cooperation from their mentor or company employees (n=7), or their assignment to relatively unstimulating tasks (n=3). By contrast, in their final internship, they pointed instead to the challenge of overcoming the stress they felt as a result of the relatively complex tasks assigned to them (n=6): they were afraid to make errors or to fall short of production standards in terms of quality, quantity and speed.

With respect to the learnings acquired during their internships, the students emphasize first and foremost the acquisition of practical knowledge (n=19), such as new techniques, methods of work, "tricks of the trade" or putting into practices what they had seen in school. They then underline their familiarization with norms relating to the dynamics of the labor market or their occupation (n=9), application to the work in order to meet set objectives (n=6), increased self-confidence (n=5), the development of communication and teamwork skills (n=3) and autonomy (n=3). The two types of learning most often cited reflect the two main stated objectives of alternance training, namely, the acquisition or transfer of competencies set by the study program, and the progressive integration of the student towards practicing the chosen occupation.

5.4 Vocational plans

When the students are invited to specify their vocational plans, the majority (n=15) express a desire to work in the company where they completed their internship. The others hope to find employment in their field of study (n=5), continue their studies in pursuit of a complementary vocational diploma (n=1), or proceed to college-level studies (n=4 drafting students). Over three-quarters of the students (n=21) consider their internships as a valuable means of transitioning towards future employment; indeed, four of the seven modeling students received offers of employment with the company where they completed their final internship. The students mainly explain the internship's integration-to-work role through workplace integration skills acquired during their internships (n=10), and through references to the internship space as a means of valorizing their training (n=9). They also appreciate the experiences and learnings acquired during the internship (n=5) and their increased understanding of the job market (n=2).

The work-based training process experienced by the students appears to correspond to the characteristics of the alternance training model promoted by Quebec's Ministry of Education. Despite the differences in how alternance training is applied in each of the programs studied, we see no real differences in the work-based training process of the four groups of students. The description of the progression of the internship and associated learnings clearly demonstrates that the activities assigned to the student allowed them to acquire knowledge and to transfer, in a real work situation, the competencies acquired at school, while simultaneously allowing them to begin their integration into the labor market. The students' testimony as to their vocational plans is also eloquent in favor of integration to work, in that the majority of students hope to continue working in the same company which accepted them as interns, and the other students expressed a desire to work or pursue further studies within their field.

6. Workplace training relations

Training relations in the workplace are a manifestation of the type of student training offered by the internship. These relations link the student or intern first with his or her mentor, then with the other employees and his or her teachers. The mentor is responsible for the student during the internship; he or she defines the tasks, supervises the work and guides the student throughout the work-based training period. The students were invited at two separate junctures to describe their relations with their mentor, the other employees and their teachers. In the first interview, at school, nearly three-quarters of the students (n=18) highlighted the assistance they received from their mentor. According to their reports, this support relationship took the form of an attitude of openness that put students at ease, attentiveness and responsiveness to questions, the imparting of "tips and tricks" and the communication of methods of work, as well as patient behavior in the face of challenges, encouragement, explanation and relevant advice. Some students even volunteered that their mentor had helped them develop confidence in themselves and had motivated them to pursue their efforts. A minority of students limited themselves to describing their relations with their mentor as good or satisfactory for purposes off completing their internship (n=3), or complained of being left to their own devices and of not having received the necessary assistance during at least one of their internships (n=4). During the second interview, in the workplace, half of the students (n=13) continued to characterize their relationship with their mentor as supportive, while the other half (n=12) claimed to be merely satisfied with the guidance they received from their mentor. A third of these students (n=8) also regretted that their mentors were too busy with their own work to have time to sufficiently attend to their interns' needs. These comments confirm an earlier analysis, wherein mentors begrudged the lack of time available to them to train their intern, given overwhelming production demands.

The students' relations with the other employees appear complementary to those with their mentors, and borrow the same configuration. Nearly two-thirds of the students (n=16) qualify these relations as helpful and appreciate having thereby received supplementary training that fleshed out answers to their questions, put them at ease, etc. The other third of students considered their relations to be good or normal (n=5) or stated that they had little or no relations with other employees (n=4). This absence of communication was attributed to lack of time, excess of work, negative working environment or a conflict with an employee. The majority of students thus received almost as much training from other employees as from their mentor. The work environment as a whole became a source of training and the students were able to benefit from more consistent guidance.

In alternance training, a teacher or internship coordinator is intended to visit the student during the internship. In jewelry-making, this visit is supposed to take place each week, whereas the other three programs prescribe a single visit per internship. During the first interview, some of the students (n=11) had benefited from all of the planned visits, and some (n=11) had not received a visit from the teacher during one of their internships. Almost half (n=11) found these visits helpful, as the instructor spoke with them about their work, offered them some advice, encouraged them and boosted their self-confidence. One quarter of the students (n=6) considered these visits satisfactory and another quarter (n=6) were indifferent to the visits, which had not been helpful. A minority of students (n=7) expressed several misgivings (n=15) which mainly centered on the bad mood or lack of patience of their teachers (n=4), their lack of readiness to provide assistance (n=3), an overbearing manner that left insufficient room for autonomy (n=3) and occasionally difficult communications (n=3). During the interview in the workplace, more than two-thirds of the students (n=17) testified to having good or helpful relations with their teacher or the school internship coordinator who visited them during their internship. This latter individual provided explanations and judicious counsel, and motivated the interns. Seven students, however, reproached their teachers for being insufficiently available, keeping visits too short or not coming to meet with them.

Overall, the students reported having very supportive relations around their work-based training experience. They particularly appreciated the training provided by their mentor and other employees of the host company. They are, however, more severe vis-à-vis their teacher or the school representative, whom they reproached, among other things, for a lack of availability and patience.

Conclusion

The students' testimonials as they relate to the work-based training process, as well as to their training relations during the internship periods, demonstrate a very high level of satisfaction vis-à-vis the training they received in the workplace in the context of vocational training including alternating school- and work-based educative sequences. Since any training experience can be improved, we have, by way of conclusion, grouped together the criticisms expressed by students about the various aspects of their work-based training.

The negative aspects highlighted by students relate to their school-based preparation for internships, the training they received from their mentor and the contribution of the teacher who visited them during the internship. A few students wished their school would allow them to acquire more extensive technical training, and transmit more detailed information about the workplace to facilitate their adaptation within the host company. Some students deplore the lack of guidance received from their mentor during the initial internships and the understimulating tasks assigned to them. Would the company have greater difficulty integrating students who were less advanced in their study program? During the final internship, the students regret instead that their mentor has too little available time or is too busy. This fact is consistent with our analysis of mentors' accounts (Hardy & Parent, 1999b), wherein these individuals saw their role in training interns as going unrecognized by their employer, and themselves as failing to benefit from any lightening of their workload that would allow them to supervise their students. Finally, let us note that some students reproach the teacher who visits them for being insufficiently available, for not helping the students enough and for cutting visits too short or failing to visit at all. This last comment calls into question teachers' training with respect to the work-based training of their students and the recognition of this function within their job description. Teaching representatives, however, condemn the lack of time accorded teachers to guide their internship students.

These commentaries invite a reflection on current recognition for work-based training by the industrial and educational sectors. It seems, on the one hand, that some mentors and teachers would benefit from complementary training in the development of interns beginning their vocational training and, on the other hand, that the organizations and institutions involved ought to reorganize teachers and mentors' tasks to free up more time for them to devote to responding more adequately to the needs of students.

References

Agulhon, C., & Lechaux, P. (1996). Un tutorat ou des tutorats en entreprise. Diversité des pratiques. [*Workplace Mentorships: Diversity of practices*] Recherche et Formation, (22), 21-34.

Brochier, D., Froment, J.-P., & d'Iribarne, A. (1990). La formation en alternance intégrée à la production [Alternance training integrated with production]. Formation Emploi, 30, 3-19.

Direction générale de la formation professionnelle et technique [General Direction of Vocational and Technical Training]. (1995). L'alternance en formation professionnelle et technique: Cadre de référence [Alternance in vocational and technical training: A framework of reference]. Québec: Ministère de l'Éducation du Québec.

Evanciew, C. E. P., & Rojewski, J. W. (1999). Skill and knowledge acquisition in the workplace: A case study of mentor-apprentice relations in youth apprenticeship programs. Journal of Industrial Teacher Education, 36(2), 24-54.

Gérard, F. (1999). La formation des enseignants et formateurs en Europe. [*Training of teachers and instructors in Europe*] Actualité de la Formation Permanente, (160), 33-94.

Geslin, M.-P., & Liétard, B. (1993). Un tuteur peut en cacher beaucoup d'autres. Du tuteur à la fonction tutorale. [*One mentor can hide many others. From the mentor to the mentoring process*] Education Permanente, (115), 119-127.

Grubb, W. N., & Villeneuve, J. C. (1995). Co-operative education in Cincinnati: Implications for school-to-work programs in the U.S. Berkeley, CA: National Center for Research in Vocational Education.

Hardy, M., & Parent, C. (1998). School-workplace collaboration : Experiences of the administration of vocational education and training schools. European Vocational Education and Training Research, Proceedings of the VETNET program at the ECER Conference (pp. 97-103). University of Twente.

Hardy, M., & Parent, C. (1999a). Mentors and instructors involved in "alternance" training. International Vocational Eduction and Training Association, Orlando, Florida.

Hardy, M., & Parent, C. (1999b). Perceptions of mentors involved in initial vocational training in the workplace. European Conference on Educational Research, Lahti, Finland.

Henripin, M. (1994). Les pratiques locales du partenariat éducation-travail. C. Landry, & F. Serre (Editors), École et entreprise: Vers quel partenariat? (pp. 29-43). Sainte-Foy (Québec): Presses de l'Université du Québec.

Lasonen, J. (1999). Enterprises as environments for workplace learning and training. J. Lasonen (Ed.), Workforce preparation in a global context (pp. 199-216). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Lechaux, P. (1995). Alternance et jeux des acteurs. L'exemple du baccalauréat professionnel. [*Alternance and the actors' roles. The vocational degree example.*] Formation Emploi, (49), 47-68.

Ministère de l'Éducation (2000a). Les établissement d'enseignement au Québec, http://www.meq.gouv.qc.ca/ADMINIST/OrgScol/m_etablis.htm, (septembre).

Ministère de l'Éducation (2000b). L'ATE au secondaire, http://inforoutefpt.org/ate/ate-secondaire.htm (septembre)

Monod, A. (1999). Formations et apprentissage. [*Training and learning*] Actualité de la Formation Permanente, (159), 5-91.

Stasz, C. (1998). Learning how to learn at work. Center Focus, 19(June), 1-5.

Stasz, C., & Kaganoff, T. (1997). Learning how to learn at work: Lessons from three high school programs. Berkeley, CA: University of California, National Center for Research in Vocational Education.

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The FLEX-VET Project in Finland: vocational training including mechatronics and the training needs of the Finnish metal industry

Abstract

Finland has studied the present key qualifications and core problems of the metal industry. In the second phase of the project the companies using mechatronics were concentrated on. In Finland mechatronics is defined as the integration of electronics, software and mechanics starting at the early product development and design stages. With the help of the information technology the steering system of the machines can be developed to be more versatile, faster and often more reliable than before. Applying the thinking and know-how of mechatronics helps to develop products of higher value and thus to increase customer satisfaction. The enterprises interviewed were two large enterprises from southern Finland and two SME enterprises from Central Finland. The interviewees were production workers and their representatives and the representatives of the management. Special attention was paid to the key qualifications required in work and the core problems and reactions to changes in metal industry. According to the interviews the following key qualifications appeared to be the most important for the enterprises: Readiness to participate in further training, IT knowledge, Social skills (communication and co-operation), Responsibility, Learning to learn, Languages (internationalisation). The same qualifications were found in the wider surveys and training needs analyses made by The Confederation of the Finnish Industry and Employers (TT). The national curriculum for the upper secondary level vocational qualification (in machine and metal field) includes also these key qualifications of the flexible broadly skilled employee. The next question is how the vocational training in metalwork and machinery corresponds to the trends and training needs of the Finnish metal industry. How the key qualifications and changes needed in working life are implemented in upper secondary vocational training including mechatronics? The results of the surveys concerning the needs of working life are without value if they are not used as guidelines for more responsive VET and as tools for developing better labour force of the future.

Introduction

This paper forms part of the Leonardo da Vinci –project 'Flexibility in Vocational Education and Training (FLEX-VET), Educating a Flexible Workforce in Europe' co-ordinated by the University of Twente. In Finland we concentrated on finding out how responsive the vocational education and training is to changes in the working life. For that purpose a sample of the present curricula at national and institutional level covering education and training in the metal field were studied. Another aim was to find out how well the requirements of flexibility and key qualifications in the metal industry are included in the curricula and in the actual teaching and learning processes. As a background the present state of metal industry was looked into, the representatives of four enterprises were interviewed and recent surveys concerning the development and future of the metal industry were studied.

The present state of metal industry in Finland

Metals, engineering and electronics industry

Main branches	Gross production 1999, FIM 1000 million	Number of employees 1999
Electronics and electro-technical industry	116	66 000
Mechanical engineering	92	117 000
Metals industry	31	17 000

The metal industry is at present the largest industrial sector in Finland, comprising of 40% of the labour force, 40 % of the value-added, 50 % of the visible exports and 75 % of R&D expenditure (invested by companies)

The economic development

Since the beginning of 1994, the Finnish economy has grown at a steady rate and the economic outlook continues to be favourable.

The electronics and electro-technical industry grew by 25 % in 1999 but this year the rate is expected to come down to about 15 %. The rate of growth in the mechanical industry and steel industry is supposed to be around 4 to 5 % this year.

Due to the favourable trend in the metal industry, about half of the companies experience difficulties in getting qualified employees. Those most needed are engineers in electronics, data processing and mechanics but also skilled welders, CNC machinists, toolmakers and sheet metal workers are difficult to find.

Why electronics and electro-technical industry with emphasis on mechatronics?

Electronics is the fastest growing branch of metal industry in Finland both as to the gross production and the number of employees. It is also the branch were most development is happening.

Mechatronics is a new field both in the industry and in the education and training.

Mechatronics in Finland is defined as integration of electronics, information technology and mechanics starting at the early product development and design stages and continuing into production stage and the final product. The aim is to raise the intelligence of the machines and equipment and at the same time increase their flexibility, economy and dependability.

Short description of the case studies.

Two SMEs in north-eastern Finland and two big companies in southern Finland were selected to be interviewed.

The interviewees were production workers and their representatives and the representatives of the management. As only four companies were selected and eight persons interviewed, the sample was too small to allow any generalisations on the basis of the interview results. Therefore it was decided to compare the results with those of more comprehensive studies in order to find out how well they correlate with the general trends in the metal industry. Two recent studies were selected: Komeetta (An overall evaluation of the training in machinery and metal technology and electrical engineering – the Finnish National Board of Education) and Vision 2008 (five reports of the project initiated by the Federation of Finnish Metal, Engineering and Electronics Industry - MET).

In the case studies the following methods were used:

a) Face-to-face interviews using the questionnaire prepared by all project partners

b) Comparison of the interview results with two recent surveys.

While interpreting the interviews the following three dimensions were especially considered: Key qualifications, companies' reactions to the changes and core problems.

Results of the case studies show that, according to the interviews, the enterprises consider the following six key qualifications to be the most important:

1) Readiness to take part in further training
2) Knowledge in information technology
3) Social skills
4) Responsibility
5) Learning to learn and
6) Language skills.

The interviewed companies react to the changes of their field and of the society in general by competition, career development, training and teamwork, and learning to become a learning organisation.

As core problems they named the following pairs:

1. Time vs. quality,
2. Speed vs. precision,
3. Short term interests vs. long-term interests,
4. The interests of the employees vs. the interests of the company,
5. Quality vs. money and
6. Creativity vs. restrictions caused by the rules of the company.

Most of the trends found to exist in the companies interviewed for the Flex-Vet project were also reported by the Vision 2008 –project and the Komeetta –study. The central trends which were mentioned and which correlate with the core problems and the key qualifications are:

1. Globalisation of the markets
2. Increasing turbulence of both domestic and international markets
3. Networking and other types of co-operation between companies
4. Technological changes, especially the increasing use of information technology
5. Uncertainty concerning the future

Vocational education in Finland

The main aim of the Finnish educational policy is to offer the highest possible level of education for the whole population. One of the main policy principles connected with this aim is the availability of education and training for the whole population even after the compulsory education. Over 90% of those finishing the comprehensive school continue either in upper secondary school or vocational education and training. The principle in planning educational services is to offer each student after the comprehensive school a study place either in the general upper secondary education or in the vocational upper secondary education.[1]

The main purpose of the vocational education and training is to raise the level of vocational skills of the workforce, develop the working life and answer to its skills requirements as well as to promote employment.[2]

The aim of the vocational education and training is to give the students such theoretical knowledge and practical skills as are needed to attain vocational competence as well as skills for independent entrepreneurship. The vocational competence consists of general key qualifications that are common to several fields and specific skills of a certain occupation. An additional aim of the education is to support the development of the students into good and balanced persons and members of the society as well as to give the students necessary knowledge and skills for further studies, hobbies and many-sided development of personality and to support the life-long learning.

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[1] http://www.minedu.fi/minedu/education/standard_education.html, 8.9.1999
[2] The Law on Vocational Education and Training, 630/98

Vocational education and training (young people)

The Finnish school system, especially the vocational education, has undergone many changes during 1990s and has been strongly developed. The renewal of educational plans for vocational education was undertaken at the beginning of the 1990s with the aim of reducing the number of educational programs by means of integrating the vocational fields covered by them. New structures and content of state-wide vocational qualifications were adopted in 1995 and 1996. The essence of the reform was to make the transition to extended vocational education, uniting vocational mastery and general education.

The phased reform of vocational degrees will continue and will be completed by the year 2001. Existing degrees will be integrated into three-year degree programmes consisting of at least half a year (20 credits) of practical work experience. These practical periods are intended to enhance the working life relevance of the degrees and ease students' entrance into working life. Under the new framework, students will have to provide evidence of competence in their vocational studies. The reform will lead to a slight reduction in the annual student intake.

From the point of view of a single student the new model of education is more flexible regarding the time and place of education, i.e. it widens the possibilities to choose and combine subjects and courses. Training modules completed at the medium stage of education are acknowledged as qualification stage of higher vocational education in the same industry.[3]

The study programmes yield extensive basic vocational skills for various assignments in the relevant field and, in addition, more specialised expertise in one sector of the study programme. A three-year vocational qualification provides general eligibility for higher education. The scope of the study programme is 120 credits (one credit being equivalent to a student's average study effort of 40 hours), including 90 credits for vocational studies and relevant on-the-job training and 20 credits for common studies.

One of the nationally accepted goals of vocational education and training is flexibility. The study programmes consist of modules that are based on the activities in the working life. The vocational education system tries to meet the flexibility requirements of the working life by including into the study programmes modules that can be freely chosen by individual students. These optional modules can also be from other fields than their own and their scope is 10 credits. Common studies in all initial vocational programmes are mother tongue, the second national language, foreign language, mathematics, physics and chemistry, social, business and working life studies, physical and health education, and arts and culture.

Vocational adult education and training

During the last few decades, adult education has become an increasingly important part of the national education planning and policy. The 1980's were a period of development for vocational adult education. In the 1990's, working life and the labour market have changed rapidly and the standards of work assignments have risen. Consequently, lifelong learning has become an important principle, defining the education policy.

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[3] Manual for the development of Curricula and learning and teaching material for vocational education and training, Compiled by: V.Shapkin, L. Heiskanen, G. Teleshov, S.Kuznetsov, A.Jauhiainen, Osmo Ojamies; Development of study materials in the framework of the project TSP13/97 Telematerial - Design of Learning / Teaching Material in the Framework of VET Reforms in North-West Russia. Telecommunication Sector

The aim of adult education policy in the 1980s and in the beginning of the 1990s has been to link vocational adult education and youth level basic vocational education tightly together and to unify the core curricula used in vocational institutions, labour market training and apprenticeship training.

The main trend in the state's adult education policy during the past few years has been a purposeful use of the market. The market mechanism has been introduced also in the reform of control and financing procedures: organisers of adult education and training have started to compete with each other in the selling of educational services. The central aim of this market-based adult education policy is to follow the changing needs of the labour market as flexibly as possible. At the same time, there has been a shift from the supply model of education to the demand model.

Adult education is organised in more than 1,000 institutions of different types such as universities and polytechnics, vocational institutions, vocational adult education centres and special institutions, adult education centres and workers' institutes, folk high schools and summer universities, upper secondary schools for adults, study centres, physical education centres and music institutions. Only some of these provide exclusively adult education, whereas the majority offers instruction for both young age groups and adults. A special form of adult education is the employment training, where the employment administration provides unemployed people and those in risk of unemployment with vocational courses purchased from various educational institutions and private training organisers.

The Vocational Qualifications Act in Finland came into force in May 1994. The aim of the Act was to introduce a competence-based examination system open to all adults, revealing vocational skills of a person irrespective of the way they were acquired. The other goals of the Act are to raise the educational level of adults, diminish the gap between educational level of different generations and establish a state system of ensuring the quality of vocational training, covering all spheres of vocational adult education and training.

There are three types of certificates:

1. initial vocational qualification (indicates basic vocational qualification acquired by young people as to structure, goals and eligibility for further studies);
2. further vocational qualification (indicates that the person has the skills and competence required of a skilled worker);
3. specialist vocational qualification (indicates mastery of the most demanding job skills in a particular field).

The Ministry of Education determines the number and structure of vocational programmes and qualifications, and the Finnish National Board of Education establishes core curricula as well as guidelines for competence-based examinations. The latter defines the main scope of special skills for each qualification on the basis of national qualifications.

An important provider of vocational adult education and training and also the largest in the country is the network of vocational adult education centres, which has a 25-year history. The programmes they run represent over half of all vocational adult education provided in Finland every year. The total number of adult education centres is 47, and their network covers the whole country.

The scope of the study

The third part of the Flex-VET –project concentrates on finding out how responsive the vocational education and training is to changes in the working life. The main questions for the third phase of the Flex-Vet project are:

- How does the vocational training in mechatronics correspond to the industrial trends and training needs of the Finnish metals, engineering and electronics industry?

- How are the key qualifications needed in the metals, engineering and electronics industry implemented in the (upper secondary level) vocational curricula and training in machinery and metal technology including mechatronics?

Our study concentrates on the vocational education (at the vocational upper secondary level) that includes mechatronics. The students of the vocational qualifications and the training programmes on which we concentrate in our study will be qualified as constructors/assemblers, fitters and maintainers of the mechatronic machines and equipment. These qualifications and training programmes are available in vocational schools or institutions mainly concentrating on young people and in vocational adult education centres in different parts of Finland.

Mechatronics as a vocational subject

In vocational institutions arranging education and training mainly for young people (16-19 years old) mechatronics can be studied as part of the *vocational qualification in metalwork and machinery* and *vocational qualification of mechanical fitter* until August 2000 when the curricula will change. From August 2000 mechatronics is part of two training programmes called *automation technology and maintenance* and *production technology*.

In vocational adult education centres mechatronics is included in the *vocational or further qualifications of mechanical fitter*. Otherwise the emphasis is more on production technology (machining, sheet metal work and welding) than on mechatronics. All the five adult education centres represented in this study offer a possibility to study the *further qualification of mechanical fitter* and two of them give also courses connected to *vocational qualification of mechanical fitter*. The latter is based on the goals of the national core curriculum of the machinery and metal industry and the further qualification has its own basics stated by the Ministry of Education. The requirements of the further qualifications are certified by the National Board of Education on the basis of the proposal given by the educational committees connected to the Board. The professional skills are defined in *the Basics of the further qualifications* and at the same time the requirements for the qualifying examinations are set.

Mechatronics in the national curriculum of the machinery and metal industry

The legislative framework for and general principles of the education policy in Finland are enacted by the Parliament. The Government decides on the general national objectives of the education as well as the studies common to all students and the scope of such studies. The Government, the Ministry of Education, and the National Board of Education are responsible for implementing this policy at central administration level.

The Ministry of Education is the highest education authority in Finland and is responsible for formulating Finnish education, science, youth and sport policies and for creating conditions for their implementation. Nearly all publicly subsidised education is subordinate to or supervised by the Ministry. The Ministry of Education decides on the details and scope of the study programmes.

The National Board of Education is an expert agency under the Ministry of Education and is responsible for drawing up and approving the national core curricula to the educational institutions. The National Board of Education decides on the objectives and central content of the studies in individual basic qualifications as well as in further and specialist qualifications (national core curriculum, guidelines for competence-based examinations).

The law and the decree covering vocational education and training require that the needs of labour market have to be considered when planning and implementing the vocational education and training. This means active co-operation between the parties responsible for education and training and the labour market parties. The main channels through which the social partners and the business life can participate in the development of vocational education and training are the tripartite expert bodies, Training Committees, set by the Ministry of Education and the governing bodies and consultative committees of the vocational educational institutions.

The national core curriculum of the machinery and metal technology is divided into the following four vocational qualifications:

Vocational qualification in metalwork and machinery, 2 years
Vocational qualification of mechanical fitter, 3 years
Vocational qualification in machining, 3 years and
Vocational qualification in sheet-metal work and welding, 3 years
(The National Board of Education, 1995.)

As our study concerns mechatronics, we concentrate *on the vocational qualification in metalwork and machinery* and *the vocational qualification of mechanical fitter.*

The qualification of metalwork and machinery is divided in four orientation alternatives that are Production Technology, Foundry Patternmaking/Casting Technology, Plastic technology and Precision mechanics. Within the Production Technology it is possible to choose between four training programmes, one of them being mechatronics. The alternative of mechatronics includes hydraulics, pneumatics, fitting, manufacture and electrical engineering. The extent of the qualification of metalwork and machinery is 80 credits. One credit covers officially 40 hours of study in a week.

The vocational qualification of mechanical fitter is based on the qualification of metalwork and machinery/ Production Technology and the extent is 120 credits, 40 credits more than in the basic qualification. *The vocational qualification of mechanical fitter* is divided in two orientation alternatives: *Mechanical fitting and Mechatronics*. Both alternatives contain mechatronics (hydraulics, pneumatics and automation technology) but Mechanical fitting concentrates more on machining and welding while Mechatronics contains more electrical engineering and deeper know-how in hydraulics and pneumatics.

From August 2000 the duration of all the vocational qualifications will be 3 years and 120 credits. Officially 1 credit contains 40 hours of studying and one year consists of 40 credits. The extent of studies remains the same even though the chosen way of progress (e.g. optional subjects), student's previous qualifications and his/her working experience can affect the total time spent on studying.

The degree is made up of vocational studies (90 credits), common studies (20 credits) and optional studies (10 credits). Vocational studies are divided into common vocational studies (30 credits) and studies separated into three training programs (60 credits). The training programs are the following:

Production technology
Automation technology and maintenance
Foundry pattern making

In this study the particular interest lays on the programs 2 and 3 because they include mechatronics as a part of the compulsory and optional training programmes.

Key qualifications

In this study key qualifications have been formulated as knowledge, insight, skills and attitudes belonging to the durable core of vocation or a group of related functions, with the possibility to transfer to other and new functions within that vocation and of innovations within that vocation, which contribute to the development of a person's vocational competence and facilitate transitions within the career.[4]

In the third phase of the Flex-VET project leaning on the results of the previous phases the aim is to examine the appearance of the most important key qualifications in the national curriculum of the machinery and metal technology. In the interviews of the enterprises during the second phase of the Flex-VET project, the following six key qualifications of the metal industry were especially pointed out: knowledge of information technology, knowledge of languages, learning to learn, responsibility, social skills and readiness to take part in further training.

Key qualifications in the national curricula of basic and further training

The national curriculum of the machinery and metal technology (1995) is divided into the following sections:

Structure of the training and degrees

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[4] Streumer 1997, 19

Functions and values of the education
Description of the machinery and metal technology and *objectives* of the training
Degrees and contents of the vocational studies
Common studies
Development and evaluation of the training
Curriculum of the individual educational institutions

The six key qualifications are included in the national curriculum of the machinery and metal industry extensively and briefly mentioned in the basics of the further qualification of mechanical fitter. The descriptions seem to form a constant reminder of the existence, importance and linkage of the key qualifications with all the subjects in the curriculum. However, it is easier to set the targets for the training and the ideals for the future professionals than it is to tell how to put them into practice. Some practical examples of the teaching methods and arrangements are included in the section 6 of the national curriculum and in the basics there are none. However, the national curriculum is the law and principle, which gives the objectives and basis for the institutional curricula and training. It is not a didactic document, so the information about how to teach key qualifications has to be acquired from different sources.

The curriculum 2000 (valid from August 2000) for the machinery and metal industry is divided in two parts. *Part I* contains the goals and contents of the vocational education, principles of evaluation and instructions to arrange guidance, learning-on-the-job and to design the institutional curriculum. Also the contents of the common studies and more detailed *descriptions of the training programmes* have been included in the part I. *Part II* is briefer containing the principles of the competence based qualifications. The descriptions of the machinery and metal industry, its characteristics and values as well as the definitions of human being, knowledge and learning, work and professional skill are included in the appendix at the end of the curriculum. We examined how the six key qualifications are included in the curriculum 2000 and if there is any significant difference compared to the curriculum 1995 described above.

The curriculum 2000 is based on the conceptions about the learning and knowledge. The growing demand of responsible independence, learning skills and an ability to work as part of a team form a continuous context for the realisation of the contents of the curriculum. Key qualifications are comprehensively included in the curriculum as a form of a list and as a content of the descriptions about the concepts and values of education. The basic values and key qualifications have not changed compared to the previous curriculum but they are described more extensively and more concretely and the emphasis is laid more on the individuality of a single student. However, it is also pointed out that individuality and independent activity are not the requirements for people to get along all alone without any help. On the contrary, the working life today requires full time involvement and cooperation. More concrete descriptions about the planning of the institutional curriculum and evaluation of the students have been given in the new curriculum. All the descriptions are based on the values of the vocational training and professional characteristics of the machinery and metal industry.

Key qualifications in the curricula of the vocational institutions

The curricula 1995 and 2000 for the machinery and metal industry both stress the importance of the institutional curriculum as a flexible tool of quality control, internal development and information. The curriculum of a single educational institution should be drawn up in co-operation with the students, teachers, the whole educational community, interest groups and the representatives of the working-life. According to the curriculum 1995, the institutional curriculum should contain the values and ethical starting points affecting the educational activities. The objectives and contents should be concretised from the principles of teaching, guidance and evaluation. After taking care of these parts of the curriculum, the planning of single courses and teaching can begin. According to the curriculum 2000 the institutional curriculum has to contain the common part for the whole institution and single parts differentiated by the degrees. The common part includes the values and arrangement issues of teaching, guidance and evaluation when the other part is more concentrated on the personal studying and evaluation criteria and information about the studies, projects and practical training.

In our study we examined the curricula of five vocational adult education centres and four vocational institutions. The teachers of mechatronics, who were interviewed on the telephone, were asked to send us the institutional curriculum concentrated on their own training programmes. Seven curricula described the vocational qualification of mechanical fitter, one described the further qualification of mechanical fitter (n=1) and one of them was a draft of the whole institutional curriculum 2000. So these curricula, except one, did not contain the common objectives and values of the whole vocational institution but (as a part of the institutional curriculum) they contained among other things the descriptions of the profession and contents of the subjects. These are the parts that teachers usually do by themselves and in cooperation with other teachers within the same training programme.

The results from our examination were similar with the results of the Komeetta (An overall evaluation of the training in machinery and metal industry and electrical engineering in Finland, 1999). Concrete methods and principles to arrange the training were missing in the curricula so the basic idea was to describe only the structure and contents of the training. In five curricula the contents were only listed under the study programmes and in the rest four curricula they were shortly described. So the importance of the curriculum as a tool of teaching for a single teacher is not actually emphasised in practice. According to our interviews, teachers do most of the planning inside their heads and on their own. Curriculum is "just a paper" that gives the structure but the actual planning is going on all the time when the courses are changed or new training equipment is implemented. However, an important question from the viewpoint of the key qualifications is if teachers are conscious of the methods they are using in training and their effectiveness as regards the learning of their students. According to the face-to-face interviews (made for the continuation study on the subject) some of the teachers found key qualifications to be inherited qualities that can be developed in the limits of a student's personality.

It remains to be seen, whether the changes in the curriculum 2000 make teachers to change the institutional curricula into more concrete direction. This way it would be possible also for the outsider (e.g. a representative of the working life) to have a more concrete picture about the nature of the teaching in the single institution. Maybe this is the fact that has been recognised better in the vocational adult education centres by reason of the more commercial nature of training i.e. need to advertise the training for the local enterprises. As a conclusion, the nature of key qualifications is not very strong in the institutional curricula, neither in straight descriptions nor in the methodological descriptions or the descriptions of the values of the teaching. Therefore, the question "How the key qualifications are implemented in training" remains to be seen in the answers of teachers that we interviewed by telephone and later in face-to-face interviews.

Teachers' conceptions about the key qualifications

After examining how the key qualifications needed in the Finnish metal industry are implemented in the (upper secondary level) vocational curricula in machinery and metal technology including mechatronics, we are asking how the vocational training in mechatronics corresponds to these industrial trends and training needs. So, we interviewed the teachers of mechatronics to get the practical picture about the key qualifications and their importance and implementation in training.

How teachers think affects the way they act. Therefore it is possible to study the contents, practices of the teaching and the development of teaching technology by examining teachers' thinking and the motives of their actions. The full information on the teaching is not necessarily reached by observing the visible actions that always have the invisible thinking process behind them. Therefore the question about the relation between practice and thinking process becomes actual. By concentrating on the practical theories and beliefs that affect teachers' actions and thinking it is possible to perceive the extensive know-how that they are using when thinking, planning the teaching and making decisions in interactive situations with the students. (Clark & Peterson 1986; Kosunen, 1994.)

The idea of our interviews was not to ask teachers directly what they think about the key-qualifications or how these qualifications should be taught at school because we did not want answers straight from the didactic books but the opinions and ideas of the teachers themselves. We wanted to see if the teachers are conscious about these qualifications and in that way to say possibly something about the implementation of qualifications in practice. The idea of the provocative questions sent by the e-mail was the same. The telephone interviews lasting half an hour are too short for an exhaustive study but they gave us clues and motivation for the more precise investigation about the subject and so the study will continue as a form of Master's thesis during the summer 2000. Ten face-to-face interviews have already been made in vocational institutions but the results have not been completely analysed yet. In this report we have included the results and ideas from the telephone interviews and some ideas that have come up from the more specific and deeper face-to-face interviews.

Realisation of the interviews

Our sample (n=11) of the telephone interviews consisted of five interviewees from five vocational adult education centres and six interviewees from five vocational institutions (educational provision for 16-19-year-olds). The vocational adult education centres that have mechatronics included in their training programmes were sent an e-mail to find out the proper teachers to join a telephone interview. Vocational institutions were selected from the Internet pages of the National Board of Education (http://db.opti.edu.fi/). They all will start the training program of automation technology and maintenance in August 2000. Also the vocational institutions were sent an e-mail to find the proper teachers for the interview. After finding the right institutions and the teachers, they were contacted by telephone and sent a short description about the Flex-VET project by e-mail as well as a request to join a telephone interview concerning the training of mechatronics. Later the date and time of the interviews were arranged by telephone. All the interviewees were men and they had 10-30 years of working experience. They have been teaching mechatronics from 1 to 10 years. Educational background is quite uniform 6 of them being engineers (machine- and metal technology, 1 information technology), 3 technicians (1 electrical engineer) and 2 graduate engineers (MSc).

All the interviewees were positive towards our project and they wanted to know more about it. Telephone interviews took approximately half an hour. The questions 1 and 2 concerned the role of mechatronics in the working life, working environment and the future of the industry. With these questions we wanted to warm up the teacher to tell about the industry and to see what kind of picture he has about the working life. This picture could be later compared to his description about the reality of teaching and to the picture we already have about the industry. Question 6 was a direct question about the correspondence between training and the working life. By the questions 3-5 teachers were encouraged to describe the important qualifications needed when performing the job and teachers' ways to plan and carry out his teaching.

In our sample of the mechatronics teachers there was not a significant difference in answers between the teachers of adults and teachers of young people. In telephone interviews the answers of single interviewees were quite similar but in the face-to-face interviews the differences in reflections on one's own teaching, students and objectives were more noticeable. So, the results of the more concrete reflections on key qualifications are still under analysis. However, some guidelines leading up to key qualifications could be found already related to the teachers' definitions of required competence, teaching and learning.

Results from the interviews

Field of mechatronics

The teachers find that mechatronics already has a big role in the machinery and metal industry and this role is all the time taking more space for itself. It is the connecting element between the electricity, information technology and machine and metal industry. According to the teachers the major characteristics of this industry field are independent working and an ability to work in cooperation with others. Internationality is a self-evident fact as the instruction manuals and the latest news from the field are often in English and some companies look for installation and maintenance jobs also abroad. The field of mechatronics is becoming more widespread and diversified. The responsibility is growing and so is the demand for high quality. Most of the tasks are carried out in working pairs or in teams. However, the basic knowledge in machine and metal technology should be in a good command as knowing only the software is not enough when trying to install or service the machine.

According to Komeetta (1999) there is some contradiction between aspects that have been emphasised in training and the training results in the machinery and metal technology. Teachers support the transfer from theory into practice and responsibility of one's own work but their opinion is that the students do not learn these things. Communicational skills and customer service are the least emphasised parts of the training even though the teachers consider them to be very important in the working life. However, when asked from the teachers and students as well, they think that communication skills are well developed with the inner growth of the students and the general abilities produced by the training. The courses of action from the working life and right attitudes towards working are hard to teach in vocational institutions. When searching the right educational methods, teacher's examples and attitudes are working as a starting point and the methods and actions of the institutions should be developed by applying the actions known from the working life. (Räisänen, 1999.)

According to the teachers, one of the problems in the vocational institutions for young people is the inability of the students to study the demanding subjects of mechatronics. Many pupils in the vocational institutions come from the comprehensive school with low credits because the pupils with better results do not want to continue their studies in a vocational institution but in a polytechnic or a university and thus continue in the upper secondary schools. The situation is different if the vocational institution offers a possibility to take a matriculation examination while doing one's vocational qualification (dually oriented qualifications). In two of the vocational institutions where teachers were interviewed face-to-face, the students were doing both qualifications. Teachers seemed to be very aware of the difference between their students and the average students in the field.

Also some of the vocational adult education centres have problems with students' abilities and motivation. For example when the course is an employment training course financed by the labour administration some of the students seem to be there only to pass the time and for not to loose their financial unemployment benefits. When the subjects are complex and need a lot of concentration the teachers become frustrated with the students who are not interested in the courses. One of the interviewees told about the earlier reasoning tests, which used to survey the required abilities (logical thinking, mathematical skills, diligence, patience, interests etc.). According to him, the groups were much more motivated at that time.

In machine and metal technology there are some defects in carrying out the objectives of the common studies (mathematics, mother tongue, physics etc.), which are very important when trying to obtain the technical basics of the field or a possibility for graduate studies and ability to life-long learning in general (Komeetta, 1999). The most alarming thing, according to Komeetta, is that the learning results in these subjects are staying weak when at the same time teachers are criticising that the common subjects are taking too much time at the expense of the vocational subjects. It is contradictory that according to teachers the reason for the lousy learning results is on students' weak starting points when at the same time the students are complaining that the teaching of the common subjects is too much repetition comparing to comprehensive school. According to Komeetta, there is a need to develop the teaching of these subjects as well as to integrate them in teaching of vocational subjects. The development of the integration is badly unfinished at the moment. (Räisänen, 1999.)

Required qualifications

According to teachers the social skills seem to be the most important in the working culture of today. Ability to communicate, to work as a part of a team and take the others into consideration is very important. Also an ability to search for information, learn new things continuously and to put them into practice (transfer) are required as well as logical thinking, mathematical power of deduction, diligence, patience, intellectual curiosity and readiness to learn foreign languages. These are demanding requirements and some of the teachers take them as innate features that can not actually be taught at school. However, when the requirements are like this, the working environment and teaching methods should at least support their realisation.

Planning the teaching

One of the teachers of the adults told that when planning the teaching he takes into account the students, their level and starting points because the contents are already designed. The other who thought about how to teach had a problem with time and encouraging methods:

"I don't have time to plan the teaching and it happens in my free time inside my head. I keep thinking how to get students learn when the results are meagre. How to get people excited? Didactics is useless, it doesn't help. I have been talking with pedagogues."

All the other 9 interviewees mentioned just the contents of the studies as targets of planning and some of them do not plan so much anymore:

"I follow the magazines of the field and get the new contents from there. For I have been teaching 25 years I don't have to plan the lessons anymore."

"The planning consists of contents and basic work (probably meant the practical examples). Textbooks are already available and there are not so many new things in the contents...I have been teaching for a long time."

"I discover the subjects, I get to know them, I prepare a curriculum or apply something when teaching. Often you become practised with the subject."

The syllabus, timetables, personnel and material were also mentioned to form a basis for the planning of the teaching. Someone opens the book to see what are the next subjects to be taught. One of the teachers has made textbooks and so he considered the planning as a continuous process. Also the enterprises were mentioned as a co-operative partners in the planning process. As a whole, the contents are serving more as a target of the planning than the methods are.

Carrying out the teaching

The most repeated answer among the interviewees was "First theory and after that the practice" which teachers told to be the clearest way to learn mechatronics. It is very important that the theory part does not last too long and some of the teachers cut the lessons in little parts of theory and practice. When the memory is short, the subjects are complex and students willing to learn by doing, this is the most effective way to handle the situation. Usually the applications are done in pairs or in teams but it depends on the group what methods are used. In face-to-face interviews teachers pointed out also independent working (i.e. without teacher) and collecting the accomplishments in one's own rhythm. This can be carried out in pairs, groups or alone. The best situation is mentioned to be when the questions come right from the students and the problems arise in practice. Then the motivation to solve them is higher and teacher can take the role as a guide and adviser instead of being a giver of information.

Nine of the eleven interviewees thought that the training is responding well to the needs of the working life. However, the following comments were added to the opinion above:

"Yes, it is responding to the needs of the working life although the requirements of the abilities and know-how, the qualifications, are running off at high speed."

"The training is excellent as regards the working life, but the education does not have a crucial role because a good student will be a good employee in any situation but a bad student can not become good even with a good training."

"Yes, it is responding because we have the new equipment and they are very good."

"Yes, because we have had a possibility to visit the working life in a big local enterprise, we have new equipment and new premises."

"Of course it does. Otherwise, there would not be vocational education any more! Other kind of talk is hypocrisy."

One of the interviewees told that the training is not up-to-date because there is no money for the development (he meant the equipment). Another told that training responds only partially to the needs of the working life because in three years you get the basic skills as a novice and the rest of the learning happens in the working place.

Very different point of views can be seen in the answers. One of the teachers does not see his role as a teacher very powerful when it comes to the learning of his students. In face-to-face interviews it also came out that some of the teachers consider the key qualifications very innate qualities that are maybe impossible or at least very hard to be taught. Some of the teachers in telephone interviews comprehended the correspondence between training and working life from the viewpoint of the teaching equipment, which is of course very important in vocational training. However, it also shows how the *conscious* emphasis is more on the contents and resources than on the principles of learning or on key qualifications.

As a conclusion teachers seem to understand the importance of life-long learning as a continuous process in one's personal and working life. The training gives a basic knowledge and skills for a student who can use them as a key to working life. Student centred way to teach is also a self-evident fact, for the teaching methods and the arrangements of the contents were told to be designed according to a group in question. This is hard because sometimes the students are very different.

Teachers are well aware of the importance of the key qualifications and they were able to list all of them within the interviews. However, it may be a little bit uncertain to some teachers how to actually teach these skills to the students or is it even possible. In face-to-face interviews teachers described more concretely their ways to teach and also the objectives behind these methods, but the clear conscious idea about teaching particularly key qualifications was not (at least yet) discovered.

Answers to the provocative questions

Seven teachers answered our provocative questions by e-mail. In face-to-face interviews questions were asked directly in the interview situation.

Learning to learn

Most of the teachers talked about the concept of learning instead of the metacognition of learning to learn so the concept might have been unfamiliar or not understood. For one of the teachers the concept was related to pedagogy (as science) and he told directly that he could not actually see the difference between learning and learning to learn. Two of the interviewees described learning to learn in a following way:

"Learning begins as a child and continues through studying and working life. Person who is interested in the issues learns to learn more effectively and faster by the experience."

"In my opinion the Finnish educational system produces learning to learn from the beginning of the comprehensive school (self-evaluation etc.). Though the learning abilities increase with the maturity which comes with the age."

Also the others who mostly talked about the concept of learning pointed out the importance of learning by doing, students' attitudes towards learning and learning as a life-long process.

The effect of teaching

All the teachers confirmed that their teaching has an impact on how their students learn. However, most of them pointed out that more important is the attitude and motivation of the students themselves which were considered rather innate features. One of them mentioned also the personality of the teacher to be a crucial thing. In face-to-face interviews some of the teachers told how their role is sometimes to be like a father to the students. For young people from 16-19 years old only teaching the subjects is not enough. They need also confidence, encouragement and guidance and sometimes even someone to talk to.

Problem solving skills

The shared opinion among the teachers was that the problem solving skills are at least as important to a mechanical fitter as they are to a graduate engineer. They did not make any difference between the characteristics of these skills.

Cooperation and communication

Everybody considered these skills to be very important. One of the interviewees emphasised that the situation is complicated if independence becomes egocentricity. The other defined the different levels of important co-operation: in working group, inside the company, between the other companies and international cooperation.

Responsibility, fairness, reliability, tolerance, equality, manners, values and motivation and the international working environment

According to the teachers these values should be enhanced in the vocational training as well as already in the comprehensive school. Internationality means mostly English language instruction as the mechatronic equipment and machines are mostly international. Also jobs abroad are possible.

Courage, initiative, innovation, creativity and independence

All the teachers sincerely hope that they would be capable to strengthen or even create these characteristics in their students and almost all of them told that they have had these sort of experiences during their teaching career. However, the feedback from this kind of development is not very easy to perceive and sometimes it may come even years later from the old students.

As a conclusion teachers were very aware of the importance of the listed key qualifications as part of the vocational education. They seem to worry about their students and they are sorry if learning is not taking place. Making students learn and giving them keys to the working life is their main objective. However, some concrete examples and methods were missing especially in the telephone interviews. It was partially the result of the short questions and a short time reserved for the interviews but also the question arises whether the teaching methods and ways should be more conscious especially when talking about the key qualifications. Maybe the information about *how* to teach these skills is not enough available and enough delivered to the teachers. Maybe the question about whether these skills are even possible to teach is unclear for many people though everybody knows they are so important. Maybe this is the issue that should be discussed in cooperation with the teachers.

Conclusions and recommendations Defining flexibility was one of the first tasks in the Flex-VET project. Flexibility in its different forms (individual, curricular, delivery and pathways) is implemented extensively in the Finnish system of vocational education in the machinery and metal industry. The national curriculum of machinery and metal technology gives the structure of the contents and the principles of planning, teaching and evaluation for the vocational institutions. The national curriculum gives to the single vocational institutions a possibility to design their own institutional curricula according to the needs of the local enterprises and the needs and aims of their students. In vocational adult education centres the personal study plans are made for each student to consider their different backgrounds and to set the individual targets for their studies. The new educational system invests especially in the flexibility of delivery (timing, speed, method and place) with the increasing amount of on-the-job learning in practical training. Some employees in the enterprises are trained to guide and instruct the students who come to work and learn to the enterprises.

The system is just coming into effect and nobody knows exactly how it is going to work but lots of efforts have been put on it. In vocational adult education centres students have possibilities to study the courses in their own rhythm and to give skill demonstration tests even without taking any courses. The pathway of mechatronics is open for everybody although it may be difficult to get into some of the institutions because the amount of applicants might be high. It is also possible to study the matriculation examination at the same time with the vocational qualification. The students have a wide range of the optional subjects that they can choose and create the qualification of their own. The importance of key qualifications seems to be realised in every sector of the machinery and metal industry. The definitions given by the enterprises, the results from the Vision 2008 -study, the principles and values included in curricula and finally the opinions and conceptions of the mechatronics teachers are all consistent with the definitions of the key qualifications in the Flex-VET project. The current demands of the work are realised to form a basis for the necessary development of the key qualifications, and learning as a life-long process is a self-evident fact. The aim is to develop skills that will ease the transfer from one situation to another and skills that can be stimulated during the work.That is, everybody knows what are the key qualifications that should be pointed out in training and the arrangements; curricula, contents and environment have been developed to support these aims. However the question of the common subjects like mother tongue and their role in developing the key qualifications in relation to the basic vocational subjects seems to be a little bit unclear. Should it be only the matter of a language teacher to know how to develop and improve these skills or is it a matter for all the teachers? Maybe some of the teachers of vocational subjects are missing the tools with which to ease the integration of key qualifications in their teaching. On the other hand it might also be a question of consciousness. It is obvious that the methods to teach the key qualifications are already implemented in some of the teachers' teaching but how many of them consciously use these methods. Therefore, by realising the importance and practical realisation of these skills teachers would become more conscious about the methods that a teacher can use to better the effectiveness of training connected to key qualifications.

Sources

Airaksinen, T. (1999) Metalli- ja elektroniikkateollisuus. Visio 2008. Pääraportti. MET Metalliteollisuuden Kustannus Oy. Helsinki. (The main report of the Vision 2008 study)

Airila, M. (1999) Lisäarvoa koneisiin. Automaatioväylä 4/1999, pääkirjoitus. (An article of professor Airila in the Automaatioväylä magazine. Mauri Airila is professor and Head of the Laboratory in Department of Machine Design in Helsinki University of Technology)

Airila, M. (1993) Mekatroniikka. Espoo: Otatieto Oy.

Clark, C. M. & Peterson, P.L. (1986) Teachers' Thought Processes. In Wittrock, M.C. (edit.) 1986 Handbook of research on teaching. Third edition. A Project of the American Educational Research Association. New York: Macmillan.

EDUfi:n www-sivut: http://www.edu.fi/info/system/english/toinena/ammope.html EDUfi on Opetushallituksen ylläpitämä opetusalan uutis- ja tietopalvelu sekä oppimateriaalin jakelupalvelu.

(Information services of the National Board of Education in the Internet)

Kosunen, T. (1994) Luokanopettaja kirjoitetun opetussuunnitelman käyttäjänä ja kehittäjänä. Kasvatustieteellisiä julkaisuja N:o 20. Joensuu: Joensuun yliopisto. (Research about the teachers using and developing the curriculum.)

National Board of Education (1996) Adult education and training.

Opetushallitus (1994) Koneenasentajan ammattitutkinto. Tutkinnon perusteet. (The basics of the further qualification of mechanical fitter)

Opetushallitus (1995) Kone- ja metallialan opetussuunnitelman perusteet toisella asteella.
(The national curriculum of machinery and metal technology)

Opetushallitus (2000) Ammatillisen peruskoulutuksen opetussuunnitelman ja näyttötutkinnon perusteet, kone- ja metallialan perustutkinto.
www.oph.fi/ops/ammatillinenkoulutus/teli/kone/konetavoitteet.html
(The national curriculum of machinery and metal technology 2000 also available in the Internet:
www.edu.fi/julkaisut/maaraykset/ops/konemetalli.pdf)

Räisänen, A. (toim.) (1999) Komeetta - kone- ja metallialan sekä sähköalan koulutuksen kokonaisarviointi. Arviointi 4/1999. Opetushallitus.
(An overall evaluation of the training in machinery and metal technology and electrical engineering)

Saari, J. (1999) Metalli- ja elektroniikkateollisuus. Visio 2008. Työelämä - haasteita, kehityssuuntia. MET. Metalliteollisuuden Kustannus Oy. Helsinki.
(Working-Life report of the Vision 2008 study)

Streumer, J.N. (1997) Educating a flexible workforce for Europe: Consequences for designing responsive vocational education and training. Research proposal. Enschede: University of Twente.

Teknillisen korkeakoulun koneensuunnitelun laboratorion www-sivut. Www-sites of the Department of Machine Designing in Helsinki University of Technology:
www.machina.hut.fi

TT - The Confederation of Finnish Industry and Employers (1997) Oppia ikä kaikki. teollisuuden visio elinikäisestä oppimisesta. (The vision of industry about the life-long learning)

Www- pages of the National Board of Education on the system of vocational education in Finland: http://www.edu.fi/info/system/english/toinena/ammope.html, 2000.

Www- pages of the National Board of Education on the system of vocational adult education in Finland: http://www.edu.fi/info/system/english/index.html, 2000.

Www- pages of the National Board of Education on the competence-based qualifications: http://db.opti.edu.fi/nayttotutkinnot/default.asp, 2000.

Www-pages of the National Board of Education, information on educational possibilities and training institutions in Finland: http://db.opti.edu.fi/, 2000.

Education and training service of the employment office, 06.04.2000.

Year Book 1998 Metals, Engineering and Electronics Industry

Learner/Manager's uncertainty of their capacity for innovative problem solving: an ICT based solution

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Learner/Manager's uncertainty of their capacity for innovative problem solving: an ICT based solution

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"Learning and Business" (LAB) is an ESF funded research project, taking place at the Centre for Learning Development, University of Wales, Bangor. The aim of the project is to develop ICT based tools that will assist managers with problem based creative learning. The focus of this paper is to explore the relationship between attitudes to creative problem solving and perceptions of competence and confidence. The data gathered from 52 respondents revealed high levels of perceived competence and competence that failed to correlate as predicted with factors relating to attitudes to creativity. Alternative explanations are offered that explain the patterns of interactions obtained. Details of follow-up research activities are provided.

1 Introduction

The output of the North Wales economy is expected to grow by 2.3% per annum between 1997 and 2007, considerably faster than the rate of 1.5% experienced between 1991 and 1997. It is expected that most new jobs will be created in service sector occupations, with opportunities in manufacturing occupations diminishing. Opportunities in higher skilled occupations are likely to be greater than for jobs with lesser skill requirements. (Skills Wales Report, 1999). Use of computers in business areas such as planning and support, customer-facing activities and production is predominately below UK average for all regions. The government-backed University for Industry (Ufi) is promoting the use of computer-based learning materials among businesses. The world of business is now in a permanent state of flux where constant innovation is the only strategy for survival of both the individual and the organisation (Peters, 1997). Marginalisation through lack of appropriate support and guidance must be avoided. With this in mind, one of the objectives of this current project is to develop too's specifically designed to help managers/learners/users assess and develop their problem solving and creative thinking skills through the medium of ICT.

The Learning and Business (LAB) project has two interrelated strands of research. The objective of both strands is to promote the type of learning that is particularly pertinent to successful businesses, i.e. that which results in innovative solutions to business problems. Strand (a), 'Developing quality measures for learning and business environments', will survey and evaluate established information and communication technologies (ICT) based learning environments. These measures will be developed into a web based guidance tool acting as an aid to selection of effective learning environments. Strand (b), "The development of software tools that will enhance managers' creative thinking and problem solving skills and develop innovating learners". The project also seeks to discover, describe and disseminate innovative techniques for encouraging learners within businesses to embrace the opportunities for creative problem solving offered by communication technologies.

The two strands will culminate in a package that will assist managers/learning brokers, within Small to Medium size enterprises (SMEs), and to utilise ICT to enrich and provide a more effective working/learning environment. The resultant products, 'Quality Measures of Learning and Business Environments', 'Enhancing Managerial and Business Skills' and 'Creative Problem Solving' will form a modular programme that will promote confidence and help managers and businesses to utilise and resource learning materials more effectively. The focus of this paper concerns the preliminary stages involved in the development of strand (b), innovation, creativity and problem solving. It addresses learners/managers' confidence/uncertainty in their capacity for creative problem solving.

1.1 What is creativity?

Creativity is traditionally thought of as an ability to use flexibility of thought to see hidden connections amongst ideas and/or to use unexpected results as the basis for a radical shift in thinking (Weisberg, 1981). One of the complexities attached to defining creativity is the question of whether creativity is considered as a single intellectual ability, or as a collection of skills that are made up from many sub-components. If a more general perspective of creativity is taken, there are four premises from which research pivots: the Person, (the prediction of creativity), the Products, (outcomes) the Process, (mental processes that contribute to creativity), and the Press (environmental pressures) which make up the four P's (Garnham and Oakhill, 1994). An alternative premise has been classified by Runco (1993); personal factors are taken into account such as cognitive, motivational and attitudinal, social and environmental. A more radical view of creativity may be the utilisation and transfer of crystallised intelligence (what the individual has already experienced or learnt) to a fluid state where new information can be absorbed, analysed, inferences made, and applied across appropriately selected domains. Without even considering, individual differences and perceptual variance, the combinations and permutations that are possible within the creative problem solving process are enormous. In short, creativity is a complex area, difficult to define and difficult to measure.

1.2 Can creative problem solving be developed? And if so, how?

Can effective and creative problem solving strategies be learnt? One major piece of evidence that support the notion that creative problem solving can in fact be learnt comes from novice vs. expert studies. Studies of experts vs. novice performance offer sufficient evidence that skill levels can be enhanced. (Chase and Simon (1973), Larkin, Mc Dermott, Simon & Simon, (1980a,1980b), Larkin (1983), Chi, Feltovich, and Glaser (1981), Carroll, (1987); Shneiderman (1980) and Bayman and Mayer (1988). Taking into consideration that creative problem solving is, at least in part, an acquired skill based on perception, learning and memory, how can this capacity be developed?

One avenue for building capicity for creative problem solving was clearly identified by Mayer (1991) who states "problem solving in a domain depends heavily on the quality and quantity of the problem solvers' domain-specific knowledge". This opens exciting possibilities with the development of Information and communication technologies (ICT) particularly as they apply to on-line learning. Expert information can, potentially, be made available "on line" which could then allow the novice immediate access to a wealth of relevant learning opportunities. According to Clegg and Birch (1999), "the Internet is now a prime source of creativity, both as a stimulator and as a source of extra information". It is important to note however that whilst ICT provides information, and so the possibility for accessing explicit knowledge, it rarely in its present form provides a means of developing the tacit knowledge that is most readily acquired through experience.

It must also be remembered that even if ICT could provide the novice with the knowledge they require this is not sufficient to guarantee creativity. Creativity also depends upon cognitive skills as well as upon access to information but it appears that ICT can also help here. Technology can provide organisational tools that can be used to enhance creativity and problem solving techniques. For example, Howe (1992) discovered that the utilisation of computer models stimulated final products and outcomes, and increased the quality of new designs. This reinforces the view held by Amabile, (1983) who proposed that some virtual environments encourage creative thinking, particularly those in which individuals see themselves as self-motivated, rather than working to fulfil extremely set goals. Closely defining the cognitive skills involved in creative problem solving is not easy but there is some agreement that creativity is dependent upon a number of stages. These are variously described, but invariably include divergence or ideation, when the problem solvers generate a number of possible solutions, and convergence, when a single candidate is selected from the possible solutions (e.g. Leonard and Swap, 1999).

Basadur et al (1982) formulated a "complete creative problem-solving process", including the theme of divergent and convergent problem solving. Each stage of their three-stage model comprised two parts: ideation - the generation of ideas/solutions, and the evaluation of these ideas/solutions. In a later study, Basadur and Robinson (1993) found evidence to support the premise that "attitudes towards divergent thinking are important antecedents of divergent thinking practice" i.e. negative attitudes will act as barriers to divergent problem solving.

Baer (1998) points out that the area of creativity that constantly remains in vogue is divergent thinking which has dominated the field of creativity (and particularly creativity testing) since Gilford,'s 1950

American Psychological Association presidential address (Runco, 1991; Torrance and Presbury, 1994; Wallach, 1986).

Basadur and Finkbeiner (1985) presented research specifically directed at furthering the understanding of attitudes apparently related to divergent thinking/ ideation. They viewed ideation/ divergent thinking as having both cognitive and attitudinal elements. They explored four attitudes associated with divergent thinking-

"Preference for Ideation", "Tendency to (not) Make premature Critical Evaluation of Ideas", "Valuing of New Ideas" and "Belief that Creative thinking is (not) Bizarre". Scales to measure the first two attitudes were established: - "Basadur 14 Item Ideation- Evaluation Preference Scale". This scale included items such as *I like to listen to other people's crazy ideas since even the wackiest often leads to the best solution* (preference for ideation) and *judgement is necessary during idea generation to ensure that only quality ideas are developed* (tendency for premature critical evaluation of ideas)

The two remaining attitudes "Valuing of New Ideas" and "Belief that Creative thinking is (not) Bizarre" were further investigated by Basadur and Hausdorf (1996), and yet again refined , by Basadur, Taggar and Pringle (1999). Three scales emerged from this research "Valuing New Ideas", "Belief that Creativity is not only for a Select Few" and "Not Feeling too Busy for New Ideas". This resulted in a 44-item questionnaire. This instrument included items such as: *Not enough new ideas is the reason we are behind* (Valuing new ideas), *Outsiders have the best ideas* (belief that creativity is (not) for the select few), *Thinking of ideas takes time that I don't have* ((not) feeling too busy for ideas). Thus five specific attitudinal factors that related to creativity are addressed by the two instruments.

Basadur and his co-workers propose that one should be able to use their measurement instruments as training needs assessments and also be able to measure the difference between pre and post training intervention. They also propose that their measures are valid in that they would be predictive of creative achievement (Basadur et al, 1999).

Provided these claims are born out this instrument could be a useful self-assessment tool for use with managers who seek to develop their skills. It would also be a useful evaluation tool in assessing the impact of the other tools that the authors are seeking to develop. For these reasons the validity of the tool was tested. This was achieved through analysis of the associations between factors on the attitudinal instruments and by comparing perceived competence with attitudinal data.

2 Method

2.1 Subjects

Participants were recruited from a wide range of businesses (n = 17). All participants (n = 52) were managers, manager/owners or supervisory staff. Ages ranged from below 25 to above 56 years old; ages 26 – 55 accounted for approximately 83% of the cohort.

2.2 Materials

An 11-item self report of competence and decision confidence was completed, which addressed global judgements, capacity for ideation, capacity for solution selection, capacity to solve problems with others, and capacity to solve problems independently. Each item was scored by the respondent as always creative (1), creative in some situations (2) or never creative (3).

Attitudes to creative problem solving were measured using Basadur et al's (1999) 44 - item questionnaire and Basadur and Finkbeiner's (1995) 14-item questionnaire. Together, these two instruments seek to capture 5 factors relating to creativity and ideation.

2.3 Procedure

All participants were approached in their place of work and asked to complete three questionnaires. The questionnaires were paper based and required participants to circle one response in each likert type scale. Confidentiality was assured and each participant was offered a copy of the aggregated results once the study was complete.

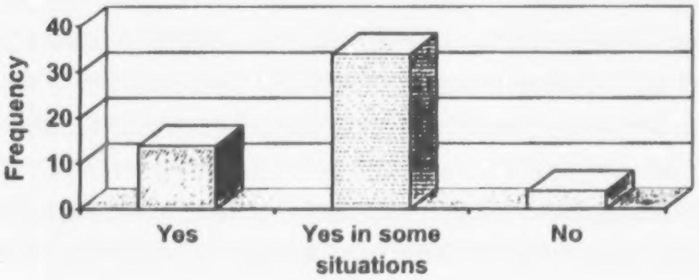
3 Results and discussion

The data were entered on to an excel spreadsheet, screened and then analysed using SPSS. Summary scores were calculated for each instrument. A competence summary score was compiled by simply totalling the scores on the 11 items. Respondents who perceived themselves as creative in all situations would receive a total score of 11 i.e. 11 items each scoring 1. Respondents who saw themselves as lacking creativity in all situations would receive a score of 33, i.e 11 items each scoring 3. Summary confidence scores were calculated as for competence scores. Factor scores were created for the attitudinal data in accord with the Basadur et al's guidance with one exception that is discussed in depth below.

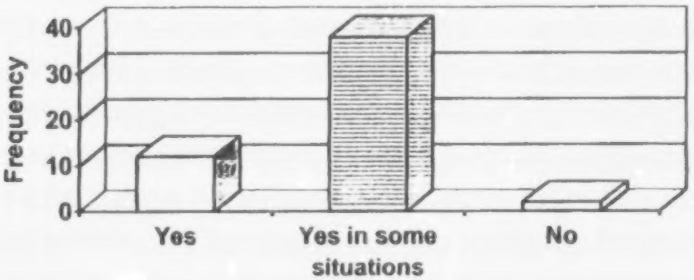
3.1 Results of the perceived competence and confidence questionnaire

The following series of graphs show frequency distributions of responses to individual items on the perceived competence questionnaire.

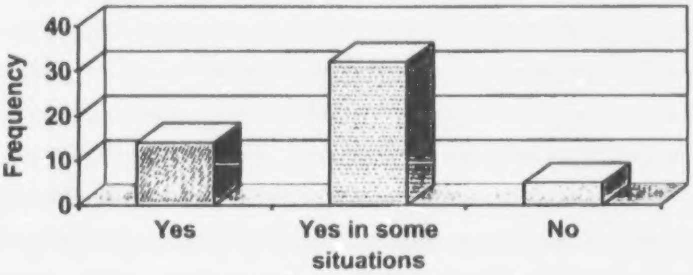
Graph 1: Would you say that you were a creative person?



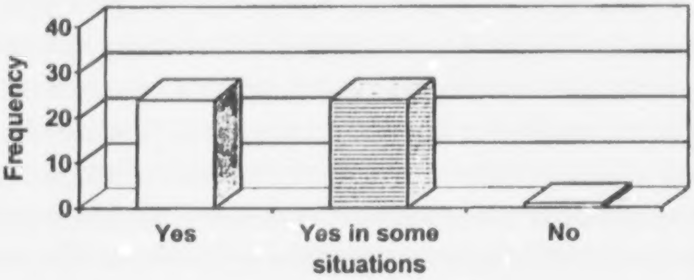
Graph 2: Would you say you were a creative problem solver?



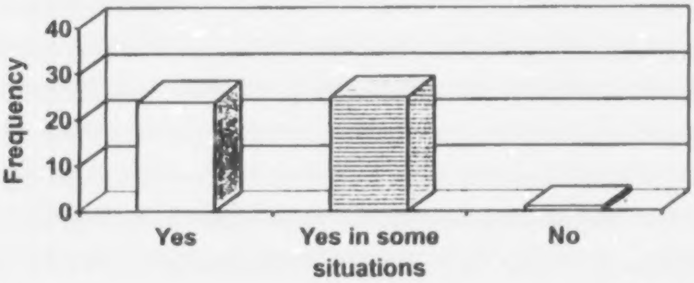
Graph 3: Are you good at generating ideas?



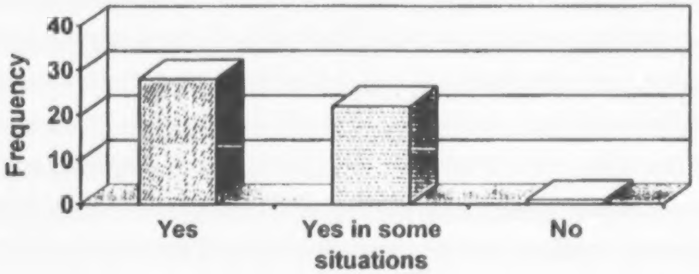
Graph 4: Are you good at deciding which ideas are good and which are bad?



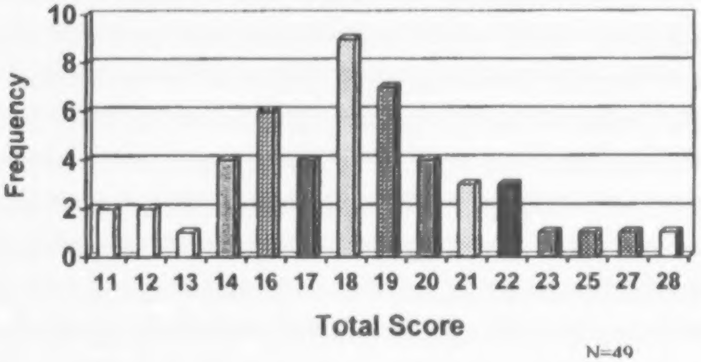
Graph 5: Are you good at solving problems by yourself?



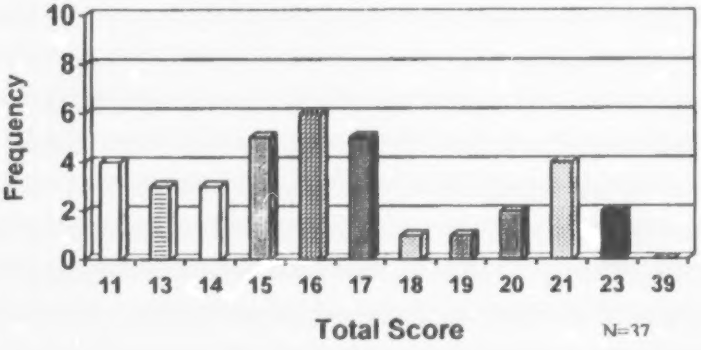
Graph 6: Are you good at working with others to solve problems?



Graph 7: Total score across sample of participants' responses - Ability (how good)



Graph 8: Total score across sample of participants' responses - Confidence



Contrary to the literature and to popular myth, the majority of this sample felt they were capable of creativity in general and creative problem solving in particular. As Graphs 1 and 2 illustrate only 10% of the respondents felt that they were not creative problem solvers, whilst the overwhelming majority felt that they were either creative generally or creative in some situations.

They were also confident of their capacity to perform the subtasks of idea generation and idea evaluation and selection (Graphs 3 -6). Total scores over all items were calculated and are presented above in Graph 7 and graph 8. The tables indicate that the group felt they were competent in their ability to be creative at least in some situations and confident in their self-judgement of their creative abilities.

3.2 Results of the attitudinal data

Mean values and ranges for the three factors identified by Basadur et el (1999) are shown in Table 1 below, together with mean values for the two factors as identified in his 1995 paper (Basadur and Finkebeiner, 1985). High scores on the ideation factor indicate a 'preference for ideation' (CTOTIDE) and high scores on the evaluation factor indicate a 'tendency for premature critical evaluation of ideas' (CTOTEVA).

Table 1. Mean values, ranges and standard deviations for attitudinal factors

	Number of participants	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Preference for ideation **(CTOTIDE)**	52	1.00	3.50	2.2929	0.5434
Tendency for premature critical evaluation of ideas **(CTOTEVA)**	52	1.13	3.63	2.5804	0.5260
Value attributed to ideas **(NTOTVAL)**	49	0.33	6.72	4.8254	1.5232
Stereotypical view of creativity **(NTOTSTE)**	47	0.43	5.00	2.9240	0.8986
Too busy for ideas **(NTOTBUSY)**	48	0.17	5.83	3.0972	1.1578
Valid N (listwise)	47				

High scores on the "value attributed to ideas" (NTOTVAL) indicate a positive attitude to creativity. By contrast high scores on the "stereotypical view of creativity" (NTOTSTE) and on the "too busy for ideas factor" (NTOTBUSY) are according to Basadur indicative of barriers to creativity. It is important to note that in the Basadur et al paper, they recommend reversing the scores on the later two factors in order that low scores indicate training needs/poor attitude on all scores. This has not been done here for reasons that will become clear later.

Table Two

Correlational analyses: The relationship between attitude to creativity and self-perceptions of competence.

Correlations

		ATOTGOOD	ATOTSURE	CTOTEVAL	CTOTIDEA	NTOTVAL	NTOTSTE	NTOTBUSY
ATOTGOOD	Pearson Correlation	1.000	.580	.214	-.015	.154	.193	.421
	Sig. (2-tailed)	.	.000	.139	.918	.308	.209	.004
	N	49	37	49	49	46	44	45
ATOTSURE	Pearson Correlation	.580	1.000	.258	.188	.170	.275	.313
	Sig. (2-tailed)	.000	.	.123	.266	.328	.122	.072
	N	37	37	37	37	35	33	34
CTOTEVAL	Pearson Correlation	.214	.258	1.000	-.230	.044	-.051	-.276
	Sig. (2-tailed)	.139	.123	.	.101	.765	.735	.058
	N	49	37	52	52	49	47	48
CTOTIDEA	Pearson Correlation	-.015	.188	-.230	1.000	-.149	-.032	.168
	Sig. (2-tailed)	.918	.266	.101	.	.306	.831	.255
	N	49	37	52	52	49	47	48
NTOTVAL	Pearson Correlation	.154	.170	.044	-.149	1.000	.641	.313
	Sig. (2-tailed)	.308	.328	.765	.306	.	.000	.030
	N	46	35	49	49	49	47	48
NTOTSTE	Pearson Correlation	.193	.275	-.051	-.032	.641	1.000	.614
	Sig. (2-tailed)	.209	.122	.735	.831	.000	.	.000
	N	44	33	47	47	47	47	47
NTOTBUSY	Pearson Correlation	.421	.313	-.276	.168	.313	.614	1.000
	Sig. (2-tailed)	.004	.072	.058	.255	.030	.000	.
	N	45	34	48	48	48	47	48

Table 2 reveals the pattern of significant associations between summary scores of self perceived competence, summary scores of confidence and the attitudinal factors described above as developed by Basadur and his associates.

As might be expected there is a strong positive association between perceived competence (ATOTGOOD) and confidence (ATOTSURE) (rho = .58, alpha<.001). This indicates that respondents who believed they were very good at creative problem solving were confident in the accuracy of they judgement. Individuals who believed they were somewhat less competent were also less confident of the accuracy of their self-rating.

The correlation between tendency for premature decision making (CTOTEVA) and feeling too busy for creativity (NTOTBUS) approached significance (rho = -.276, alpha = .058). The negative direction of the correlation reflects that, as one would expect, high score on tendency to judge ideas quickly is associated with lower feelings of time pressure as measured by too busy for ideas (NTOTBU) factor.

What is clear from the data is that all three factors identified by Basadur et al (1999) are all highly positively correlated (NTOTVAL: NTOTSTE rho = .641, alpha<.001; NTOTVAL: NTOTBUSY rho = .313, alpha<.05; NTOTSTE: NTOTBUSY rho = .614, alpha<.005). Remembering that positive attitudes to creativity are associated with high scores on NTOTVAL and low scores on NTOTSTE and NTOTBUS, this is not what would be expected. It would, of course, be expected that poor attitudes on one attitudinal dimension would be associated with poor attitudes on others. By contrast, the data reveals that individuals who value the generation of ideas also have stronger beliefs that creativity is a special skill not equally available to all and that they also feel too busy to generate ideas fully. It appears that a poor attitude to the time available for creativity may indicate a favourable attitude to creative ideas and not the reverse as is assumed by Basadur.

It could also be predicted that individuals who rate themselves as good at creative problem solving would exhibit positive attitudes to creativity. According to Basadur therefore, we would predict negative correlations between competence (ATOTGOO, where low scores indicate high creativity) and the valuing ideas (NTOTVAL) and positive correlations between competence and stereotyping (NTOTSTE) and feeling too busy (NTOTBU). This interpretation of the data is not substantiated. The association observed between summary score of competence and NTOTBUS (NTOTBUS: ATOTGO rho = .421, alpha <.005) is as predicted by Basadur's model but the other two correlations do not approach significance (see Table 2).

As described earlier, Basadur et al (1999) present their scales as a means of assessing attitudes prior to designing bespoke training courses. They suggest that the these attitudinal factors can be barriers to creativity and that, having assessed the scores of a sample of trainees, training can be designed to change negative attitudes. The data presented here suggest that the instrument is of doubtful validity if used in this way as the relationships between factors and perceived, if not actual, levels of competence are not as would be expected. Based on the results of this study, it is doubtful whether an instrument such as this should or could be devised as a form of training needs analysis.

Attitudes are not necessarily associated with universally agreed values with one end of the scale being 'bad' and the other 'good'. It is sometimes the case that attitudes at either extreme are of dubious value. It appears to the authors unlikely that employers would approve training for employees that would remove all their concern over time spent in generating ideas. It is equally unlikely that managers should be encouraged to believe that all individuals are equally capable of creative problem solving. The most successful creative problem solvers are likely to have a much more complex pattern of skills, attitudes and judgement that are not necessary stable over situations or individuals.

There is, additionally, an ethical issue relating to whether we have the moral right to seek to manipulate attitudes. Motivating employees or providing them with tools to enable them to enhance their performance is perhaps more inherently ethical than attempting to induce attitudinal change. Employees' attitudes, thoughts and feelings are their own and as employers, we may have expectations regarding their performance but not over their attitudes and belief systems. It would be preferable to develop assessments to aid with diagnosis and evaluation of knowledge and performance rather than to focus on attitudes.

4 Conclusions

The data presented here reveal that the majority of participants were confident of their capacity for creativity. This indicates that creativity training may not necessarily focus upon confidence and elevating self perceptions. Analysis of the attitudinal data raised doubts over the validity of the instruments and the conclusion was drawn that even if a valid attitudinal instrument could be devised that it would be of questionable value in assessing learning needs.

As a consequence of this research the authors are in the process of developing an ICT-based instrument that is pragmatic in its approach. It addresses both the knowledge of individuals and their skill in using creativity techniques. No claims will be made over the instrument's capacity to measure traits or attitudes, rather the aim will be to develop a reliable and valid assessment of familiarity with techniques thought to facilitate creativity. The instrument will form part of a suite of tools designed to assist the development of cognitive skills that innovation is dependent upon. The tools will be available together with guidance materials by Autumn 2001. The instrument should have wide ramifications on business organisations both in Wales, Europe and beyond. Initial versions will be CD ROM based but it is proposed that eventually a web based version will be produced.

References

Amabile, T.M. (1983). The social psychology of creativity. New York: Springer-Verlag.

Baer, J. (1998). The case for domain specificity of creativity. Creativity Research Journal. Vol. 2 p.p. 173-177

Basadur M. and Graen, G.B. and Green, G.B., (1982), Training in creative problem solving: Effects on ideation and problem finding in an applied research organization. Journal of Applied Psychology, 71, p.p. 612-617.

Basadur, M., Taggar, S., Pringle, P., (1999). Improving the measurement of divergent thinking attitudes in organisations. Journal of Creative Behaviour, Vol 33, no 2, p.p. 75- 111.

Basadur, M.S., and Finkbeiner, C.T. (1995). Measuring preference for ideation in creative problem solving training. Journal of applied behavioural science, 20, p.p. 23-24.

Basadur, M.S., and Robinson, S., (1993). The new creative thinking skills needed for total quality management to become fact, not just philosophy. American Behavioural Scientist, 37 p.p. 121-138.

Bayman, P., and Mayer, R.E. (1988). Using conceptual models to teach BASIC computer programming. Journal of educational psychology. Vol 80, p.p. 291-298.

Card, S. K., Morgan, T. P., and Newell, A. (1983). The psychology of human-computer interaction. Hillsdale, NJ: Erlbaum.

Carroll, J. M. (1987). Psychometric tests as cognitive tasks: A new structure of intellect. In L. B. Resnick (Ed.), The nature of Intelligence. Hillsdale, NJ: Erlbaum.

Chase, W.G. and Simon, H.A. (1973). Perception in chess. Cognitive Psychology, Vol 4, p.p. 55-81.

Chi, M. T. H., Feltovich, P. J., and Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. Cognitive Science, p.p. 121-152.

Clegg, B. and Birch, P. (1999), Instant Creativity Publisher: Kogan Page

Garnham, A. Oakhill J., (1994), Thinking and Reasoning, Blackwell Publishers, Oxford

Gilford, J.P. (1950). Creativity. The American Psychologist, 14, p.p. 205-208.

Howe, R.P., (1992). Uncovering the creative dimension of computer-graphic design products. Journal of Creative Behaviour, 5, p.p. 223-244.

Larkin, J.H., (1983). The role of problem representation in physics. In D. Gentner and A.L. Stevens (Eds.) , Mental models. Hillsdale, NJ: Erlbaum.

Larkin, J.H., McDermott, J., Simon D.P., & Simon, H.A. (1980). Expert and novice performance in solving physics problems. Science, 208, 1335-1242.

Larkin, J.H., McDermott, J., Simon D.P., & Simon, H.A. (1980b). Models of competence in solving physics problems. Cognitive Science, 4, p.p. 317-348.

Leonard-Barton D and Swap, W.C. (1999) *When sparks fly: igniting creativity in groups.* Harvard College

Mayer R.E. (1991). Thinking, Problem solving, Cognition. 2nd ed. W.H. Freeman and Company, New York.

Peters, T.J., (1997), The Circle of Innovation, Hodder and Stoughton, London

Runco, M. A., (1993). Cognitive and psychometric issues in creativity research. In Isaksen S.G., Murdock M.C., Firestien, R.L., and Treffinger, D.J. (Eds.), Understanding and recognizing creativity: The emergence of a discipline (p.p. 331-268). Norwood, M.J:Ablex.

Runco, M.A. (1991). Divergent thinking. Norwood, NJ: Ablex.

Shneiderman, B. (1980). Software psychology. Cambridge, MA: Winthrop.

Future Skills Wales: North Wales Results of Economic and Employment Forecasts. 2000. North Wales Training and Enterprise Council Ltd. www.nwalesleo.org

Torrance, E.P., and Presbury, J, (1984); The criteria of success used in 242 recent experimental studies of creativity. Creativity child and adult quartly, 9, p.p. 238-243.

Wallach, M.A., (1986). Creativity testing and giftedness. In F.D> Horowitz and M. O'Brien (Eds.) The gifted and talanted: Development perspectives (p.p. 99-123). Washington, DC: American Psychological Association.

Weisberg, R.W., (1981), An examination of the alleged role of "fixation" in the solution of several "insight" problems, Journal of Experimental Psychology, Vol. 110, p.p. 169-192.

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'Key qualifications' - *a new framework for analysing the modernisation of vocational qualifications and curricula*

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Introduction

Currently, the accustomed vocational education and training (VET) systems are challenged by traditional structural competition (by general/academic education) and by new challenges that are posed by alternative forms of learning. In this context it is necessary to ask how can 'key qualifications' contribute to the renewal of vocational learning culture. However, it is not enough to focus on the modernisation of vocational learning within accustomed boundaries of VET systems. Instead, it is necessary to raise the question what kind of role 'key qualifications' could play in a broader context of modernisation potentials of education and training culture. In this respect it is necessary to take into account both the potential for renewal and possible substitution by other kinds of education and training models.

On the basis of this background the paper explores the conceptual potential of European 'key qualification' debates. The ***first section*** presents an overview of three main approaches and their respective contextual characteristics. The ***second section*** explores how the main approaches incorporate 'key qualifications' into vocational curricula and interpret the innovatory potential in didactic terms. Then, the ***third section*** outlines the context for a new interpretation. The ***fourth section*** presents a new interpretation of *"key qualifications"* as didactic coordinates within the given context. The ***fifth section*** provides a picture how *key qualifications* can be used as coordinates for didactic scenarios. The ***sixth section*** presents general implications for research and development work in the field of VET.

1. Explorations on 'key qualification debates' in Europe

It is a well known fact that there is no common European interpretation of the concept 'key qualifications'. Instead, the European debates are characterised by a **diversity of parallel concepts (*'key qualifications'*, *'key/core/transversal competences'*, *'key/core skills'*)** which have somewhat different connotations and different implications for curriculum development. Moreover, it is worthwhile to note that the debates on these related concepts have always had a programmatic and an anticipatory character: the notions refer to new quality that is to be developed in vocational skills, competences and qualifications. Therefore, it is necessary to take a closer look at the debates that related to the concept 'key qualifications' (or to related concepts) in diverse societal and educational contexts.

In the following section an interpretative framework is introduced in order to make the national debates (and underlying approaches) more transparent on European level. The framework groups the most influential national debates into ***three main strands of 'key qualification debates'*** according to the following criteria:

- what is the main focus (or the frame of reference) of the basic concept;
- what is the main thrust to develop a new quality of vocational learning (and to promote a new quality in the utilisation of the outcomes of learning);
- what kind of tools and instruments are considered as the main 'vehicles' for developing appropriate curricula for vocational learning;
- what kind of implications the basic concept has for lifelong learning.

Each of these 'strands' is related to the respective notion (or notions) that is (or are) used in the respective strand. Moreover, if the debates are centrally related to one particular country, the description gives some specific indications of the evolution of the debates.

1.1. Debates on 'Key skills'

In a European comparison the UK-based debates that are related to the concept 'key skills' can be characterised in the following way:

The **basic concept** in these ***debates refers to a particular set of identified 'skills'*** that are assumed to provide a support structure for more content-specific learning in educational system and for lifelong learning (after the initial education and training period). Currently the UK authorities relate the concept to such skills as 'communication', 'application of number', 'application of ICT', 'decision-making', 'team-working', 'improving own learning'.

The **main thrust** of the concept has been introduced to ***enhance the skills of individual learners and to enrich*** the (hitherto narrow) ***vocational learning***. The concept 'key skills' aims to transcend the particular (vocational) contexts. **In the context of curriculum development** the concept of 'key skills' is related to ***specific modules or units*** that are complementary to the foundation elements of the curricula ('basic skills', 'specific skills'). These modules or units are to be assessed as essential components of the learning outcomes. Concerning **the perspective of 'lifelong learning'** the concept of 'key skills' is mainly related to the perspective of ***improving the prospects for individual competence accumulation and for individual mobility***.

1.2. Debates on 'Key/Core/Transversal competences'

The more diversified set of particular approaches and debates the are here aggregated under the notion 'key/core competences' can be conceived as a 'middle field' between two poles. The main characteristics of these approaches are following:

The **concepts** have been used more vaguely and on a more occasional basis. They ***refer*** in a more global way ***to a set of competences that transcend traditional divisions of labour and traditional occupational profiles***. Very often these competences are referred to via negative definitions ('extra-functional' or 'process-independent' competences) or by indicating a broader range of utilisation ('broadly applicable competences', 'transversal competences').

The debates are not taking a particular set of 'skills' and the enhancement of individual learning processes as their **starting point**. Instead, they are primarily related to the needs for ***'organisational learning'*** (i.e. group- or system-related working, learning and participation) within ***'new production concepts'***. Thus, the enhancement of the competence-basis of (individual) learners is related to needs to promote an organisational learning culture and to improve collective work performance and collective mastery of production processes.

From the perspective of curriculum development the main thrust of such debates is not in particular units or modules but in ***learning designs*** that promote the ability of organisational actors ***to relate the individual competences to the respective organisational context*** and to contribute to the development and improvement of the work performance. From the perspective of **lifelong learning** the debates emphasise the ability of organisational actors to ***maintain a culture of 'organisational learning'*** and to respond and contribute to constant changes in working life by developing their organisations as 'learning organisations'.

1.3. Debates on 'Key qualifications'

The third set of debates can be conceived also as a particular variant of the second set of debates. However, in the (mostly German) debates on 'key qualifications' there are particular additional features that require separate attention:

The **initial debates** on 'key qualifications' were launched by a future-oriented vision (from early 1970s) that ***challenged radically the established structures of vocational qualifications and related patterns of vocational training***. In the further debates the concept was reinterpreted and related to approaches that promote the 'inner modernisation' of vocational qualifications'.

In a further stage of debates the notion 'key qualifications' was related to three kinds concepts via different ***conceptual re-interpretations and*** through ***a pragmatic 'canonisation'***. Thus ***the notion 'key qualification'*** has been ***either***

1) ***reduced*** to particular extension characteristics of individual (vocational) learning (in line with the UK concept of 'key skills') *or*
2) ***'canonised'*** as qualification-goals concerning self-organised action within 'organisational learning' cycles (self-organised information retrieving, self-organised planning, self-organised task-implementation, self-organised quality assessment) *or*
3) ***refocused*** (and renamed) as an integrated occupational competence (integriertes Handlungskompetenz) which refers to an integrity of specialised knowledge-basis (Fachkompetenz), social and participative competence (Sozialkompetenz) and methodological mastery of new challenges in changing work situations (Methodenkompetenz).

From the perspective of curriculum development the reductionist interpretation (point a) drew attention on ***assessment***. The integrative approach (point c) has emerged in the context of curriculum redesign and piloting with 'learning designs' that integrate diverse elements of the curriculum to a ***'whole curriculum approach'***. The 'canonisation' has related these two poles to each other with ***common quality criteria*** that are to be promoted both within curriculum development and within renewal of assessment patterns. It is worthwhile noting that the 'reductionist' position and the 'canonised' interpretation are not necessarily related to a revision of qualification structures. The 'integrative' position is promoting new linkages both on the level of qualification frameworks and on the level of delivery. The **perspective for lifelong learning** is not only related to individual skills development or to being involved in organisational learning. Due to the established qualification structures, the renewal of competence-basis is linked to debates on ***career progression models*** and on degree to which the new curricula can contribute to an ***'upgrading' of the VET provisions***.

2. How to specify the innovatory potential of 'key qualifications' - reflections on the main approaches

The three strands that were presented above provide the starting point for discussing how the debates have specified the curricular context and the innovatory potential of 'key qualifications'. In this respect it is necessary to pay attention on different curricular models that have emerged from European 'key qualification' debates. Moreover, it is necessary to ask how 'key qualifications' are expected to contribute to the modernisation of the context-related vocational qualifications and learning processes.

2.1. Curricular context of 'key qualifications' in the main approaches

Concerning the curricular context of 'key qualifications' the three main approaches can be characterised in the following way:

1) The approach on 'key skills' have introduced a new learning domain to complement the more specific provisions of initial VET. However, the development of a capacity for flexibility, mobility and renewal of one's knowledge-bases is located to a domain for context-independent skills development. Thus, the approaches don't provide a generalised didactic interpretation how to promote similar capacities in the domains for developing context-specific vocational skills.

2) The approaches on 'key competences' have introduced new strategic ideas how to develop learning in organisational contexts on a more systematic basis and how support to support such learning with continuing vocational training (in particular on the basis of partnerships between work organisations and CVT providers). However, since the approaches put the main emphasis on developing particular solutions for multi-professional or cross-cutting organisational training contexts, the didactic conclusions are drawn for particular training models and are not articulated for a more systematic development of the vocational learning culture in general.

3) The approach on 'key qualifications' has been developing curricular solutions to promote capacities for flexibility, mobility and renewal of knowledge-bases within the curricula for initial VET. In this respect the approach has led to guidelines to promote self-organised working and learning (i.e. self-organised planning, preparation, task implementation and related self-assessment) as a thoroughgoing feature of new curricula. According to some interpretations some extent the meaning of 'key qualifications' should essentially be linked to these guidelines and to related measures to develop assessment procedures.. According to other

interpretations the approach can be related to initiatives to develop learning environments that promote 'integrative action competences'. However, in both cases the approach has not led to an articulated didactic interpretation how 'key qualifications' could support the renewal context-specific vocational qualifications and respective learning processes.

In general, the situation is paradoxical. Most of the 'key qualification' approaches have been launched to promote the modernisation of vocational qualifications and/or vocational learning. In this respect the debates have brought up several ideas, educational goals, implementation initiatives and common beliefs how the implementation could promote mobility, flexibility and renewal. Yet, the main approaches do not develop a didactic interpretation how the innovative concepts are expected to contribute to the renewal of context-specific vocational qualifications and related vocational learning processes.

2.2. General message of diverse 'key qualification' approaches

In spite of the differences it can be argued that most of the approaches are putting forward a common educational message that emphasises the unity of
a) 'learning to do' (specific vocational qualifications),
b) 'learning to learn' (general capacity for renewal and reorientation)
c) 'learning to be' (capacity for internalisation and self-reflection).

Yet, given this common orientation, it is necessary to note that the approaches have failed to develop a didactic articulation of the basic orientation in such a way that it would become manifest in the emerging frameworks for modern vocational qualifications and developing respective constructs and implementation patterns for vocational curricula. Consequently, there have not been many efforts to link debates on 'key qualifications' to current policy debates on the future of VET systems and on the sustainability of vocational learning culture.

3. The new context: 'key qualifications' between vocational core qualifications and the renewal of working and learning contexts

3.1. Putting 'key qualification' debates into context

In order to overcome the contradictions that have been indicated above it is necessary to develop get new insights into the curricular relevance of 'key qualifications' in order to proceed towards a didactic articulation of the respective innovatory potentials. In this context the main issue is to find answers to the following questions:

1) What kind of specific supporting and facilitating function 'key qualifications' may have as factors that contribute to the renewal of vocational learning and vocational qualifications?
2) How can the contents and essence of 'key qualifications' be characterised in a non-static way in order to underline the fact that they are involved in the renewal of vocational learning and vocational qualifications?
3) How can 'key qualifications' respond to contradictory challenges that are posed on the development of vocational learning and vocational qualifications (i.e.

challenges to improve consistency and transparency on the one hand and to promote flexibility, mobility and curricular interfaces one the other hand)?

The questions that have been posed are linked to each other. Therefore, it is necessary to develop a comprehensive framework to specify the ***intermediary role of 'key qualifications'*** in the context of curricular modernisation of vocational learning.

3.2. Outline of the new context

The starting point of the new framework is to characterise curricular modernisation of vocational learning as a complex process that takes place in a multi-dimensional ***field of tensions***. In general, these tensions can be characterised as polarities between
a) the consistency-giving foundations of vocational *core qualifications* and
b) specific challenges and innovatory impulses that require acquisition of *new qualifications*.

Crucial for the new approach is that the role of 'key qualifications' is not derived from themselves but from the dynamics of the renewal of vocational learning and vocational qualification. On the one hand the processes of renewal are based on the foundations of ***core qualifications*** that provide the consistency and focus for vocational learning and for respective vocational qualifications. On the other hand the processes of renewal are related to different intervening factors and challenging new developments that open different prospects to acquisition of ***new qualifications***. On the one hand the new developments may make it necessary to complement the accustomed core qualifications with *complementary new qualifications*. On the other hand there may be a thoroughgoing change in the actual competence-base and a need to acquire *entirely new qualifications* (either to ensure one's employability in the same field or to gain new mobility prospects).

As has been indicated above, most of the existing approaches in 'key qualification' refer to the following ***aspects of renewal*** within modernisation of vocational qualifications:

- *renewal of the competence-bases* of vocational learning,
- *changes in the knowledge resources and learning practices* and
- *changes in the social responsibilities and dependency structures*.

The deficit of the previous approaches has been the tendency to introduce 'key qualifications' as new qualification elements or as general goals for complementing core qualifications. The new framework has the task to relate different aspects of renewal to a context (the field of tensions between core qualifications and new qualifications). Moreover, the new framework has the task to ***specify 'key qualifications' as a set of didactic coordinates*** (between the opposite poles *'core qualifications'* and *'new qualifications'*). The general structure provides a basis for a respective set of didactic scenarios that specify the features of modernisation and renewal in different contexts of vocational learning.

4. The new interpretation: 'key qualifications' as didactic coordinates for modernisation of vocational learning

In the following a new interpretation of ***'key qualifications' as a set of didactic coordinates*** will be outlined as a basis for analysing the modernisation of vocational learning. The new interpretation will be based on a critical re-examination of Mertens' initial concept of "key qualifications". The main aim of the didactic reinterpretation is to give a new context for Mertens' main categories of key qualifications. Thus, the categories ('basic qualifications, 'horizontal qualifications', 'transversal knowledge elements') are not used as attributes of separate curricular entities that have a distinct didactic quality. Instead, these categories will be used as didactic coordinates that help to analyse what kind of didactic initiatives will respond to the didactic tensions and the dynamics of renewal between the opposite poles 'core qualifications' and 'new qualifications'.

4.1. Characterisation of 'key qualifications' as didactic coordinates

Below, a set of didactic coordinates will be developed on the basis of a Mertens' main categories of key qualifications. Then, in the following section, these coordinates will be used as elements of didactic scenarios that make transparent the intermediary role of 'key qualifications' in the modernisation of vocational learning.

a) Didactic coordinate 'basic qualifications'

In this context 'key qualifications' are defined as didactic coordinates that make transparent the societal challenges for renewal and the didactic prospects of renewal within vocational learning culture. Consequently, ***the didactic coordinate 'basic qualifications'*** refers to higher order learning that equips the learners with a capacity to analyse the foundations of one's own *competence-base* and challenges towards flexibility, mobility and qualitative renewal. Moreover, it refers to didactic measures that promote the learners' readiness to update, extend and renew one's competence-base as a proactive preparation for lifelong learning.

b) Didactic coordinate 'horizontal qualifications'

In this context the ***didactic coordinate 'horizontal qualifications'*** refers to higher order learning that equips the learners to analyse the changing requirements concerning command of knowledge and access to *knowledge resources* that are characteristic of their occupational field. Moreover, it refers to didactic measures to promote the learners' capacity to extend, update and upgrade one's command of relevant knowledge resources.

c) Didactic coordinate 'contextual factors'

In this context the notion 'transversal knowledge elements' is replaced and the respective ***didactic coordinate*** is called ***'contextual factors'***. The coordinate refers to higher order learning that equips the learners to analyse different organisational settings (in which they are assumed to work). It also refers to a need to create an awareness of potential changes and of demands to adjust their competence-base and knowledge resources to the respective organisational culture (including eventual partnership-arrangements or broader network-based cooperation arrangements). The coordinate refers also to didactic measures that promote readiness to contribute to the organisational learning culture and to social innovations.

d) Didactic coordinate 'vintage factors'

In this context the ***didactic coordinate 'vintage factors'*** refers to higher order learning that equips the learners with capacity to analyse the *dynamic development of facilities* that provide access to knowledge and availability of knowledge resources for different users. The capacity refers to developments in the particular field of specialisation *and* to more general development of such facilities. Moreover, the coordinate refers to didactic measures to promote continuing readiness and open learning capacity to explore the development of such facilities, to develop appropriate user-competences and to develop a general awareness of emerging developments that may have an impact of one's own field of specialisation.

4.2. The curricular and didactic implications of 'key qualifications'

Originally Mertens' concept was linked to a vision that conceived the curricular contents of 'key qualifications' as the pre-structured 'core curriculum' of a future-oriented open learning environment that contains different provisions for more specialised learning. Thus, the given categories of 'key qualifications' were considered as specific characteristics of curricular structures that provide the basis for core curriculum. Concerning the development of context-specific vocational learning or concerning the development of overarching framework the concept of 'key qualifications' remained ambiguous.

In this context the main categories of 'key qualifications' have been redefined as didactic coordinates that

1) articulate 'higher order' learning and related didactic measures in the context of vocational learning;
2) provide starting points for analysing structural changes and dynamic renewal within the context and content of learning *and* as a part of the learning practice;
3) provide points of orientation for informed decisions at individual level, institutional level and policy level (e.g. on choices between learning options, on initiatives to develop curricula and learning environments and on guidelines to develop the main frameworks for vocational qualifications and curricula).

5. Didactic scenarios as working contexts for analysing the modernisation of vocational learning

In the following an attempt is made to use the didactic coordinates as starting points for scenario-setting that helps to analyse challenges for modernisation and prospects for modernisation within vocational learning. The aim of this exercise is to illustrate on a very general level how the didactic coordinates can be used as starting points for such scenarios and how the scenarios can be linked to diverse contexts of knowledge utilisation. The aim is to give a general idea what kind of challenges for renewal and transformative potentials can be identified with the help of didactic scenarios and how they can be linked to intermediary role of 'key qualifications' as a didactic support for the renewal. Therefore, the scenarios are presented as rough outlines and they are not related to specific contents of vocational learning. Moreover, in this context the scenarios are drafted with reference to particular coordinates (and related tensions) and only briefly summarised after different aspects of have been discussed.

5.1. The contribution of 'basic qualifications' - new awareness of the changing competence-base of vocational qualifications

a) Challenges for renewal: So far the predominant ideas on vocational core qualifications have been related to distinct occupational fields and to successive specialisation within the field. This underpinning logic has recently been challenged by several innovatory tendencies that raise questions on the foundations of vocational competence-bases. Mostly these tendencies are related to new forms of work organisation that are based on 'systemic rationalisation', 'flexible specialisation', 'flexible network economy' and 'globalisation'. These tendencies, linked to various uses of ICT as a support for occupational work and related information flows and communication processes.

The new tendencies bring into picture new constellations of vocational competence-bases. Some of them are characterised by systemic integration or gradual merger of hitherto separate competence-bases. Others are characterised by new interfaces and knowledge sharing between hitherto separate fields of specialisation. Some tendencies are characterised by substitution of outdated competences and by thoroughgoing revision and reviewing of the required competence-bases. These tendencies (that would need a closer exploration in particular fields of occupational work and vocational learning) give rise to questions concerning the sustainability of accustomed distinctions between occupational fields and respective divisions into specialised profiles. At the same time they give rise to questions concerning the didactic articulation of interfaces, gradual mergers and new emerging core structures.

b) Transformative potentials: In this context of such it is worthwhile to note that the character of integrative tendencies is related to *new forms of collaboration within work environments* and work organisations. Thus, the development of occupational profiles is not only dependent on pre-given technological and organisational determinants. Instead, the social organisation of work and work-related communication and collaboration become increasingly important co-shaping factors. Thus, the *idea of vocational 'core qualifications' is becoming more dependent on the supporting learning processes* that provide the basis for adjusting the particular competences to the needs and requirements of the respective organisational context. This adjustment can be achieved by shared didactic spaces, collaborative knowledge processing and by common reflection of the organisational requirements. In this respect the traditional distinctions between underlying core qualifications can be bridged between different intermediary learning arrangements that may pave the way to deeper collaboration or integration of competence-bases.

c) The intermediary role of 'basic qualifications': The new challenges and the transformative potentials within vocational learning require a new awareness of the predominant distinctions between 'core competences' and on the new integrative developments and on their respective social consequences. In this field of tensions the intermediary role of 'basic key qualifications' is to equip the learners and curricular actors with criteria for

1) maintaining or reviewing the foundation of vocational competence-bases,
2) articulating the didactic and curricular consequences of knowledge sharing and work-related interfaces,

3) articulating the didactic and curricular implications of substantial changes in the focusing of occupational work and work-related learning.

In particular, the *intermediary role of 'basic qualifications'* is related to the *development of consistency-criteria and convergence criteria that regulate the moving frontiers between renewal of accustomed competence-bases and transition to new competence-bases*.

5.2. The contribution of 'horizontal qualifications' - new awareness of the changing role of knowledge resources within vocational learning

a) Challenges for renewal: Traditionally the knowledge resources of vocational learning have been presented as separate sets of vocational subjects or separate packages of modules. Thus, these are not necessarily based on the underpinning logic of academic disciplines and related interpretation of knowledge accumulation. In this respect the status of the knowledge resources of vocational education and training has been controversial. On the one hand there have been arguments for a merger with 'general' or 'academic education. On the other hand there have been arguments that emphasise a specific autonomic character of vocational knowledge resources. The latter position has been supported with reference to recent studies on the educational relevance of work experience and 'work process knowledge'.

In addition to this, there have been controversies on the kind of 'command of knowledge' that will be required in future work contexts. These controversies are influenced on the one hand by positions that emphasise access to knowledge resources (e.g. the scenarios put forward by earlier debates on 'artificial intelligence' and current debates on 'knowledge management'). On the other hand these controversies are influenced by positions that emphasise active knowledge processing and knowledge utilisation (e.g. the scenarios put forward by recent debates on 'self-organised learning' and on 'self-organised group work'). These debates have raised several critical questions concerning the relations between 'mastery of knowledge', 'access to knowledge resources' and 'capacity to produce new knowledge'.

b) Transformative potentials: In this context it is worthwhile to note the new potentials of modern teaching-learning arrangements to connect different requirements (regarding command of knowledge) and to serve different target groups (regarding capacity in knowledge processing) and to link different learning goals (regarding knowledge utilisation and producing new knowledge). In this respect modernisation of curriculum designs can provide new flexibility and new synergies between teaching-learning arrangements that promote mastery of domain-specific knowledge and patterns of self-organised learning in the context of working and learning assignments. In particular, modern curriculum development has become more capable in articulating these didactic horizons for each other in order to develop convergence criteria and conversion principles for particular integrated or semi-integrated teaching-learning arrangements.

c) The intermediary role of 'horizontal qualifications': In the light of the controversies on 'command of knowledge' and taking account the different challenges the intermediary role of 'horizontal qualifications' is to create a capacity to analyse and regulate different contrastive positions on 'command of knowledge'. In this respect the 'horizontal qualifications should equip the learners and curricular actors with criteria for

1) specifying direct mastery of particular specialised knowledge and command of related knowledge resources as mandatory requirements;
2) specifying the general ability to retrieve and process knowledge within the respective field of learning and on the basis of mastery of knowledge resources of the said field as a sufficient requirement;
3) identifying shifts of emphasis between different poles of 'command of knowledge' and shifts of emphasis in the uses of knowledge resources as a support for learning. In this interplay there is a constant tension between the established domain-specific patterns and challenging new developments (in particular in other domains of knowledge creation and knowledge processing).

In particular, the *intermediary role of horizontal qualifications* is related to *development of consistency-criteria and convergence-criteria that regulate the moving frontiers and outline possibilities to develop mutual articulation between different learning cultures and learning environments within the system architecture of education and training*.

5.3. The contribution of 'contextual factors' - new awareness of the implications of changing organisational contexts for vocational learning

a) Challenges for renewal: The traditional concepts of vocational education and training have been oriented towards enterprises that are oriented to the national labour market and to the national organisational culture. Thus, the underlying assumption has been the stage of industrial and organisational modernisation and the related market pressures provide a homogeneous picture of requirements concerning the deployment of the workforce. However, in this picture is changing in several respects. Firstly, modern rationalisation concepts and organisational development strategies have led to new dependency and responsibility structures. Secondly, such developments have been linked to the emergence of new partnership concepts and network-based cooperation models. Finally, these tendencies have been linked to deeper internationalisation and globalisation of the scope of modern organisations.

These developments have several curricular and didactic consequences, some of which may be compatible with each other whereas others may be in contradiction with each other. To some extent these tendencies may strengthen initiatives to link organisational learning contexts and related contextual settings in a more synergetic way to the learning culture of vocational education and training provisions. On the other hand these developments may enforce bridging initiatives between measures to promote organisational learning and supporting VET and CVT provisions. Moreover, these tendencies may strengthen efforts to promote transparency of vocational education and training provisions - also as regarding such partnerships and bridging initiatives. On the other hand these tendencies may strengthen opposite tendencies to develop independent frameworks for curriculum development and quality management beyond public VET frameworks and promote international transparency via market-oriented quality management and benchmarking approaches.

b) Transformative potentials: In this context it is necessary to pay attention to the didactic and curricular potentials to incorporate dispersed and context-embedded learning processes into complex teaching-learning arrangements. Due to the uses of similar knowledge resources and ICT-based facilities to support learning, there are more possibilities to articulate organisational learning contexts in terms of curricular frameworks for public VET and CVT systems. Moreover, joint participation as contributors to organisational learning contexts or to related networks can promote mutual understanding between different educational institutions and between institutions from different (national) educational cultures. Moreover, new educational partnerships and new modes of network-based cooperation can provide new possibilities for developing appropriate didactic spaces for broader contextual issues that go beyond the immediately work-related and organisational goal-settings (e.g. issues on ecological consciousness and sustainable development).

c) The intermediary role of 'contextual factors': In the light of new contextual developments and the transformative potentials it is possible to specify the intermediary role that is related to focusing on 'contextual factors'. This aspect refers to the need to equip learners and curricular actors with a capacity to

1) analyse changes in the social organisation of work and to adjust the orientation of vocational learning and to the actual settings of responsibility, dependency and collaboration;
2) analyse changes in the partnership concepts and network-based cooperation and to adjust themselves to respective implications of extended collaboration and internationalisation in the respective contexts of working and learning;
3) contribute to the social shaping of work, technology and work environment and to related patterns of participation that provide the basis for a social organisation of innovation.

Thus, the intermediary role of *contextual factors* is related to attempts to create a *new basis for innovatory participation* in 'ordinary' work organisations and a capacity to contribute to new modes of shaping of work and work environment within innovatory partnerships and networks.

5.4. The contribution of vintage factors - readiness adjust to permanent renewal of ICT-based tools and related user-applications

a) Challenges for renewal: Currently, the most striking feature in the renewal of the learning culture is the emergence of new ICT-based tools and facilities. Access to appropriate ICT-based tools and facilities is to be considered as major support factor for learning. Consequently, lack of access to appropriate ICT-based tools and facilities is a major source of inequality and skills gaps. Moreover, the rapid renewal of such tools and instruments provides a new basis for addressing the issue 'vintage factors' in the context of vocational learning. The renewal of ICT-based tools has at the same time particular implications on the vocational core content, on the possibilities to use additional knowledge resources and on the interpretation of the contextual scope of vocational learning. In this context it is not refer merely to general developments in ICT-based standard products and general services. Instead, it is necessary to note that the development of ICT-based applications (or -to be more specific - web-based applications) is raising more critical questions on uses of ICT as a support for learning and training in a complex interface between working and learning contexts. Moreover, the uses of ICT as a support for learning and training is increasingly based on user-applications. These have been designed in the context of shaping the respective learning contexts and as a support for knowledge sharing between dispersed working and learning communities.

b) Transformative potentials: In this context transformative potentials are to some extent provided directly by the ICT industry that tries to create more appropriate services to support learning in organisational and work-related contexts. To some extent transformative potentials are provided by independent developers of innovative user-applications that may be related to different educational and 'knowledge sharing' contexts. Finally, transformative potentials are provided by particular pilot projects that are redesigning curricula for vocational learning environments and are developing focused ICT-based and web-based user-applications in such contexts. Moreover, these potentials can be greatly enhanced by joint knowledge resource environments that support knowledge sharing and knowledge development in this context.

c) The intermediary role of 'vintage factors': In the light of the rapid renewal processes and on the basis of diverse transformative potentials it is possible to specify the intermediary role that is related to the aspect 'vintage factors'. The aspect refers to the need to develop the capacity of learners and curricular actors to
1) analyse general development of basic ICT-based tools and web-applications in order to access appropriate support facilities;
2) analyse development of tools and user-applications that are providing direct support for participative learning and for knowledge sharing in order enhance one's own possibilities for social participation in the context of learning;
3) analyse the development of ICT-based tools and web-applications in the context of innovatory practice in the respective occupational in order to enhance one's own possibilities to contribute to the development.

Thus, the *intermediary role of 'vintage-factors'* is related to need to create a new dynamic overview on parallel developments that are related to the general renewal of ICT-based tools and facilities, innovative user-applications in the context of teaching-learning activities and related knowledge-sharing and on particular uses of ICT-based tools and web-applications as a support for learning and work in the respective occupational contexts.

5.5. Specification of the overarching characteristics of 'key qualifications'

The effort to develop didactic scenarios that illustrate the intermediary role of 'key qualifications' has been limited to a high level of abstraction. Thus, exercise that has been presented above is merely a rough outline for developing specific didactic scenarios for particular fields of vocational learning. However, already this preliminary effort provides a possibility to draw attention to some overarching characteristics of the 'key qualifications' in the framework that has been based on the new interpretation:

1. The new interpretation of 'key qualifications' doesn't rely on pre-defined content areas or qualification goals or leading ideas concerning the shaping learning processes. Instead, the new concept outlines a ***framework for analysing intermediary developments*** ***and*** ***moving frontiers*** ***that are related to*** ***renewal of vocational core qualifications*** ***and*** ***emergence of new qualifications***.

2. According to the new interpretation of 'key qualifications' should be considered as separate qualification elements that refer to respectively distinct avenues of renewal within the vocational learning culture. Neither can they be promoted with separate measures that treat particular aspects independently of others. Instead, the new interpretation emphasises the ***intermediary role of 'key qualifications' as didactic coordinates that help to relate different aspects of renewal to each other***. This kind of connective reflection is to be undertaken by constructing ***didactic scenarios on the renewal of vocational learning in particular occupational fields***.

3. According to the new interpretation of 'key qualifications' cannot be developed adequately by policy preparation that is based on the work of external experts and leads to guidelines that prescribe the policy on 'key qualifications' for curricular actors. Instead, ***the concept of 'key qualifications'*** should be interpreted as ***a common framework for diverse actors to develop their respective capacities*** to ***analyse the renewal of vocational learning culture*** from their perspective and to ***contribute to the developments with their own solutions***.

6. Concluding questions - the role of 'key qualifications' in the renewal of the main frameworks for vocational qualifications and curricula

6.1. General conclusion - reformulation of the basic question

On the basis of the rethinking that has been presented above it is possible to draw some preliminary conclusions how to address the question concerning the role of 'key qualifications' within the renewal of the main frameworks for vocational qualifications and curricula.

In this respect ***the basic question is not*** of the following kind: ***"What are 'key qualifications and how can they be expressed in the main frameworks for vocational qualifications and curricula?"***

The main objection to the formulation is that it leads easily to an attempt to identify 'key qualifications' as separate curricular entities and to focus on respectively distinct measures to promote them. As has been indicated, the new interpretation conceives 'key qualifications' as didactic coordinates that support the analysis and reorientation in the dynamic field of tensions between the renewal of core qualifications and emergence of new qualifications.

Therefore, the basic ***question should be*** formulated in the following way: ***"What is the intermediary role of 'key qualifications' and how should this role be taken into account in the development of the main frameworks for vocational qualifications and curricula?"***

6.2. Towards new strategic orientations

The reformulation of the basic question then gives rise to three strategic questions that pave the way for new strategic orientations:

a) ***"How to relate the intermediary role of 'key qualifications' to the modernisation of the main frameworks for vocational qualifications within their respective educational system environments?"***

b) ***"How to relate the intermediary role of 'key qualifications' to the current modernisation of curriculum development and curriculum processes within different educational system environments?"***
c) ***"How to develop appropriate research and development concepts that draw attention on the intermediary role of 'key qualifications' and facilitate the dialogue between policy development and innovatory practice?***

These questions would require a specific examination. However, already at this stage it is necessary to relate these questions and the respective examinations to each other.

6.3. The interrelation between the shaping of the main frameworks for vocational qualifications and development of vocational curricula

Taking into account the fields of tension and the moving frontiers, it is not appropriate to consider that there would be a hierarchic or deterministic relation between these two contexts. Instead, it is more appropriate to make the following assumptions:

1) The conceptual work with modernisation of the main frameworks for vocational qualifications provides a basis for linking the intermediary role of 'key qualifications' to general determinants of the development of education and training systems. At the same time it provides the systemic outlines for transformative practice in curriculum development.
2) The conceptual work with modernisation of curriculum development provides an interpretative framework for analysing the degrees of freedom and the co-shaping potential of diverse curricular actors. At the same time it provides insights into didactic foundations of transformative practice in curriculum development.

6.4. The role of research and development activities

In this context research and development activities are needed to provide the frameworks for a new kind of 'knowledge practice' that takes into account the intermediary role of 'key qualifications'. The new 'knowledge practice' cannot merely rely on accustomed research information (whether quantitative or qualitative, observational or interpretative). The challenge to work with the intermediary role of 'key qualifications' requires efforts to anticipate the changes and to produce a picture of the didactic and curricular implications of emerging developments. This cannot be achieved by traditional tools and instruments of research methodologies. Instead, the new 'knowledge practice' requires as an in-built element the creation of a future-oriented *research and development* dialogue. The task of such dialogue is to produce didactic scenarios that refer in an appropriate way to
a) the curricular context in question (and to the respective societal dynamics),
b) the curricular challenges and didactic options,
c) the curricular actor-positions and zones of proximal development.

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What can we learn from dually oriented qualifications?

Lessons drawn by the LEONARDO partnership DUOQUAL

Paper for presentation at ECER 2000, 20-23 September 2000, in Edinburgh, Scotland, UK (18 April 2000)

ABSTRACT

This paper puts forward latest results of the LEONARDO partnership projects INTEQUAL/ DUOQUAL coordinated by the Research Forum WIFO, Berlin. These project have investigated qualifications at secondary education level which combine vocational and general education and provide a dual orientation towards employment and higher education (dual qualifications).

The particular focus of this paper are 'lessons of mutual learning', drawn in a collaborative process. The criteria of assessing dual qualifications have been derived from a model of quality which is related to personal competence and to mobility both in the education system and the labour market. Furthermore, a typology of national settings for dual qualifications has been applied which identifies the basic relationship between education and work.

In conclusion, the results of mutual learning are contrasted with hypotheses put forward in earlier phases of the partnership project. The lessons identified by the partnership are available online in the DUOQUAL Knowledge Base:
http://www.b.shuttle.de/wifo/duoqual/=base.htm

Introduction

This paper puts forward latest results of the LEONARDO partnership projects INTEQUAL and DUOQUAL (Brown & Manning 1998; Manning 1996; 1997; 1998; 1999) which have been coordinated by the Research Forum WIFO, Berlin (see Annex). Partners across Europe have analysed qualifications at secondary education level which combine vocational and general education and provide a dual orientation towards employment and higher education. These are called 'dually oriented' or 'double' qualifications, or briefly 'dual qualifications'. The schemes of dual qualification investigated in this project are set out below:

(a) schemes which extend over an integral part of the whole educational sector, such as the study branches in the Czech Republic, the vocational courses in Portugal and the vocational programmes or streams within the comprehensive school systems of Norway and Sweden;

(b) schemes which refer to individual courses or qualifications, e.g. the Bac Pro in France, the GNVQ in England, the IML in Greece, the MBO/ BOL4 in the Netherlands and the WIFI Academy courses in Austria;

(c) schemes which represent pilot projects within the established systems of vocational education and training, including the experimental reform in Finland and individual projects in Germany (Bavaria/ Brandenburg).

The particular focus of this paper are 'lessons of mutual learning', drawn across these schemes in a collaborative process. This approach of collaborative investigation and mutual learning has been developed in a group of LEONARDO projects, supported by accompanying measures on behalf of CEDEFOP. As put forward in the European Vocational Training Conference Vienna in 1998, " the emerging culture of mutual learning is emphasising the role of 'complementary areas of policy-development' or 'reshaping existing structures to incorporate new transitional models' or 'creation of comparable circumstance for piloting similar ideas within different systemic environments'" (Kämäräinen 1998, p. 13). Among the projects piloting this approach as a joint objective have been EUROPROF, POST-16 STRATEGIES/ SPES-NET (see Annex for these projects), and INTEQUAL/DUOQUAL. The concept of mutual learning and the practical experience gained in this process have been reflected in several studies (Attwell 1997; Heidegger 1996, 2000; Kämäräinen 2000; Lasonen 1998; Lasonen & Manning 1998; Stenström 2000). The procedure and outcome of mutual learning in the projects INTEQUAL/DUOQUAL is investigated below, including the methodological approach, the analysis of evidence and conclusions.

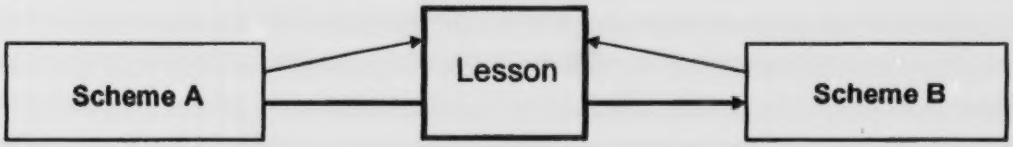
Approach

The discussions among the partnership have been based on a conceptual approach of sharing knowledge for mutual learning. The starting point has been that there are no general lessons in their own right: lessons are always contextual, related both to the schemes providing them and to the schemes receiving them.

The lessons in general are related to specific schemes, ie a lesson is normally drawn from a given scheme A in order to feed into one's own scheme B. In this process, the lesson is determined by aspects of both scheme A (eg good example) and scheme B (eg problem requiring a solution). This interrelation is of course further influenced by factors such as the perception and experience of the partner drawing the lesson.

Figure 1

Comparative approach to mutual learning

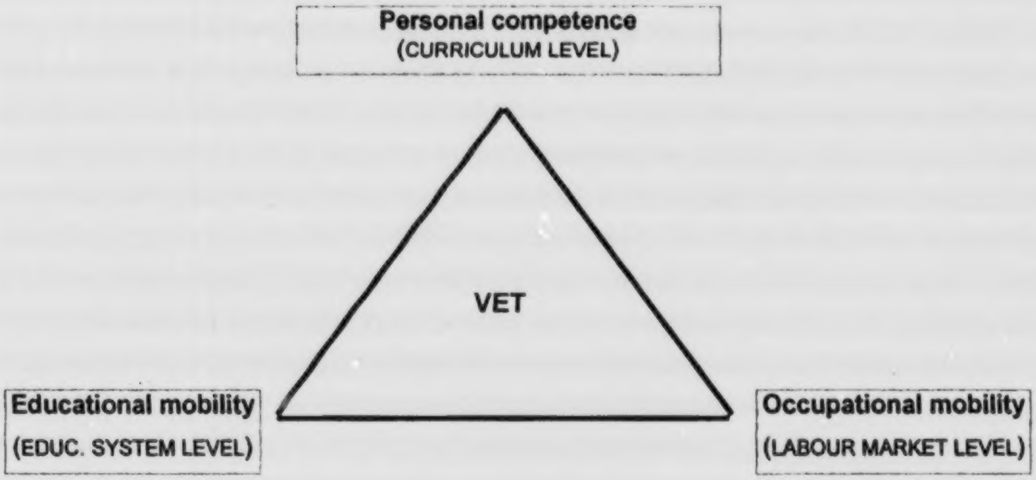


Following the guiding question (what lessons can we learn form the schemes?) the focus is on the lessons rather than the schemes themselves. The aim is to identify stimulating lessons, including good practice, and not to evaluate the schemes.

In the final discussion among the partners, project experience was related to the potential of dual qualifications set out in a model (Lasonen & Manning 1999). This model combines three criteria which are relevant for the quality of vocational education and its standing vis-à-vis general education: providing personal competence and facilitating mobility both in the education system and the labour market.

Figure 2

The quality criteria of vocational education



The lessons of mutual learning which have been drawn by the partners across various countries implicitly take account of national contexts. For the comparative analysis of these lessons, however, the contextual framework of dual qualifications has to be made more explicit. Drawing on parallel research (Lasonen & Manning 1999), a typology of national settings has been applied which identifies the basic relationship between education and work. The following three types of national settings are distinguished

- Type I: A predominantly close relationship between the education system and the labour market, based on a tracked system of education and a qualification structure which has direct relevance for occupational entry.
- Type II: A predominantly loose relationship between the education system and the labour market, characterised by a large proportion of school-based vocational education with broad specialisation and subsequent on-the-job training.
- Type III: A varied relationship between the education system and the labour market, featuring both school-based/ broadly specialised vocational education and work-based/ apprenticeship-type education with different occupational patterns.

Figure 3

The typology of national settings

Relation between education and work	Country
Type I = predominantly close	Austria, Czech Republic, Denmark, Germany, Netherlands
Type II = predominantly loose	Sweden
Type III = varied	England, Finland, France, Greece, Norway, Portugal

Analysis

The results of the roundtable discussions on lessons of mutual learning are analysed according to three research questions:

- To what extent do the schemes of dual qualification meet the three quality criteria (personal competence, educational mobility, occupational mobility)?
- Which problems are shared among the schemes of dual qualification?
- Which lessons are drawn across schemes of dual qualification?
- What examples of good practice are identified in schemes of dual qualification?

The evaluation of evidence is assessed, for each question, according to the national settings of the schemes concerned.

Quality criteria of dual qualifications

In the roundtable discussion, the partners were asked: How successful are the schemes in achieving quality according to the three criteria (personal competence, educational mobility, occupational mobility)? Each partner considered this question with regard to his specific scheme and not in comparison to the other schemes. For the assessment, the partners suggested three options: achieving quality; not achieving quality; no change.

Figure 4

Assessing the schemes of dual qualification according to quality criteria

- achieving quality (□)
- not achieving quality (□)
- no change (□)

Scheme	Competence	Educational mobility	Occupational mobility
AT: WIFI Academy courses	□	□ □	□
CZ: Study branches	□	□	□
DE (Bavaria): Pilot projects	□	□	□
EL: IML	□	□	□
FI: Experimental reform	□	□	□
NL: MBO/BOL4	□	□	□
NO: Vocational streams	□ □	□	□
PT: Vocational courses	□	□	□
SE: Vocational programmes	□	□	□

This assessment was supported by comments which the partners put forward in the course of discussion. The comments highlight characteristics of the schemes in a nutshell, largely related to the three criteria of quality.

Figure 5

Comments supporting the assessment of dual qualification schemes

Scheme	Comment by the partner concerned
AT: WIFI Academy courses	The curriculum aims both at integration of general and vocational education and at differentiation according to individual requirements; access to Fachhochschule is attractive, but difficult; universities are second choice; professional career has priority.
CZ: Study branches	Three types of dual qualification are offered, with common educational standards; the programmes are flexible with regard to time and subject choice; students are prepared to be professionals rather than to enter university.
DE (Bavaria): Pilot projects	In the pilot project all three criteria are met with success, while at national level this would probably not be achieved for all criteria; vocational pathway to Fachhochschule is attractive.

Figure continued next page

Figure 5 continued

Scheme	Comment by the partner concerned
EL: IML	The focus is on integration of vocational and general education, which is an essential quality criterion; the findings of the study showed that three aspects of this scheme worked well. the integration aspect (at least for the first two years of studies); the career pathway (occupational orientation) aspect; and the higher education accessibility aspect.
FI: Experimental reform	The standards of general subjects in the curriculum are improved, although there is no integration with vocational subjects; educational mobility is advanced; there are no data on the occupational mobility - therefore no assessment.
NL: MBO/BOL4	In competence development the stress is on the vocational side; there is a lack in general education, in preparation for social participation and citizenship; both the educational and occupational mobility is successful: 30-40% go to higher education and graduates are also good prepared for occupational practice.
NO: Vocational streams	There is not yet much integration of vocational and general subjects, but great effort to achieve this: it is a major concept; there is an increase of applying for matriculation; the connection between education and working life is essential for occupational mobility: students increasingly use apprenticeship training.
PT: Vocational courses	The following assessment relates to the professional schools; the integration of practical competences and general subjects is in progress; there is little educational mobility: theoretically access to higher education is possible, but entry is selective and students lack the prerequisites; courses are geared to those competences that facilitate occupational mobility and life-long learning.
SE: Vocational programmes	Academic subjects have been increased; for low-achievers there are individual programmes which work pretty well; access to higher education does not include all university departments; graduates of vocational programmes are not prepared to start work - they need more training and practice.

The roundtable discussion arrived at an altogether positive assessment of the quality of dual qualifications according to the three criteria. Comparisons between the schemes, however, should be made with caution. Since the question focused on the individual schemes, the partners assessed these in their national contexts and not in comparative perspective. Their judgements, therefore, reflected national standards and expectations, which may differ considerably between the countries and schemes concerned. If, for instance, the Dutch expert regards the competence development in the MBO/ BOL4 scheme, viewed from high requirements, as not successful, this in no way suggests that this scheme has 'lower quality' in competence development than the rest of the schemes which are marked as successful.

Nevertheless, the overall positive assessment corresponds to the outcome of the comparative analysis in the DUOQUAL Survey (Manning 1998). Altogether, dual qualifications potentially live up to the criteria identified for high quality and standing of VET: providing personal competence and facilitating mobility both in the education system and the labour market (Lasonen & Manning 1999). The assessment against the quality criteria also suggests, at least from the individual partners' perspectives, that there is no general distinction between 'strong' and 'weak' schemes or between 'providers' and receivers' of lessons. The process of mutual learning is related to a much more differentiated analysis and perception of the strong and weak points of the schemes, which will be taken up in the following two sections.

Problems of dual qualifications

The subsequent question addressed in the roundtable and in a parallel written statement is: what are the problems in the scheme of dual qualification? This question again focuses on the individual scheme, but opens up the debate about specific as well as common concerns. The evidence put forward by the partners on problems of dual qualifications is summarised in the figure below. For further evaluation, indicators related to the three criteria of quality and to the type of national setting are included.

Figure 6

Problems of dual qualification schemes

- according to quality criteria*) and types of national settings**) -

Type	Scheme	Problems	Criteria
I: close	AT: WIFI Academy courses	This programme serves a minority, since it takes a long time and may be considered costly; participants are faced with high demands as far as their learning capacities are concerned.	(E)
	CZ: Study branches	Due to lack of interest of social partners, a lot of progressive ideas strike against conservative thinking and the stress on practical training in the working place (methodology, syllabuses, training of instructors and teachers, etc.) is weakened.	C
	DE (Bavaria): Pilot projects	There are not enough pilot projects of our kind yet and, what's more, they have so far only attracted large businesses as participants.	(E)
	NL: MBO/BOL4	The focus is on subjects that help prepare professionals; there is a lack in general education preparing for social participation and citizenship; access to higher professional education is hampered by the academic orientation of these courses.	C, E

Figure continued next page

Figure 6 continued

Type	Scheme	Problems	Criteria
II: loose	SE: Vocational programmes	There is an implicit demand for co-operation between general subject and vocational teachers in that there is an emphasis on understanding and relating subjects from a holistic view. However, it is not always possible to bring this into effect. Work-place training has been previously mentioned as an important factor to get employment. Only 63% (1997) of the students are involved in work-place training. The most common explanation is that there is no financial compensation to the companies.	C, O
III: varied	EL: IML	Problems relate to the limited integration of subjects - covering only 2/3 of the programme of studies; and the absence of any improvement in the matched employment rate of the graduates.	C, O
	En: GNVQ	The atomistic assessment regime continues to be problematic, and the progressive commitment to self-directed learning is compromised since the outcomes are so tightly pre-specified.	C
	FI: Experimental reform	The scheme does not promote developing new methods of teaching/learning; delivery of general subjects through general upper secondary schools means disintegration of general and vocational content. The provision of the scheme is dependant on the interest of the local authorities and schools.	C, (E)
	NO: Vocational streams	In everyday classroom/ workshop activities, there is a lack of integration between theory and practice. Problems are posed by a lack of work-life experiences in foundation courses and a lack of real work training in the third year at school (alternative to apprenticeship). Some of the traditional industry and craft related streams are loosing applicants, and in some of these streams the dropout rate is especially large. This is mainly caused by students not being motivated for, or not managing the quite heavy demand on theory learning, both general and vocational.	C
	PT: Vocational courses	Subjects carry a tendentious concern to prepare the students for the national examinations of access to higher education. The technological courses promote a practical learning in the classroom but they have no on-the-job training. The curricular organisaction based on "alternance" between school and enterprise often became a traditional professional stage, due to the difficulties of real cooperation between two different worlds: school and work.	C

*) Criteria of quality: C = competence development; E = educational mobility; O = occupational mobility;
**) Types of relation between education and work: I = close; II = loose; III = varied.

The concerns addressed by the partners reveal a striking similarity across schemes and national settings. They focus, above all, on the problem of how to achieve a genuine integration of vocational and general subjects in the curriculum and the learning process. In particular there is a tension, perceived in several schemes (CZ, EL, FI, NL, NO, PT, SE), between pedagogic innovation on the one hand and the traditional divide between the academic and vocational 'worlds' (in terms of institutions, administration, qualification structures, teaching staff) on the other hand. Lack of work-place training (outside schools) has been identified as a major drawback (CZ, NO, PT, SE). The integration between theory and practice in everyday classroom and workshop activities is considered a challenge (N=). Commitment to self-directed learning may be hampered by atomistic assessment (En).

Several schemes (AT, DE, FI), while being considered successful in terms of quality criteria, turn out to be restrictive in access. This in fact draws attention to a general concern which has been raised about dually orientated qualifications. In a context of wide-ranging problems of transition from education to work, with a large section of young people being at risk, dually qualifying pathways are in effect selective, leaving those perceived as 'low-achievers' behind. The challenge for educational policy, therefore, is to ensure that schemes of dual qualification ar part of transparent and flexible systems, being accessible from any point and linking up to other parts of education and training (see Lasonen & Manning 1999).

Learning across schemes of dual qualification

The discussion of problems encountered by individual partners already gave way to a joint learning process. This was carried further by addressing the direct question: which approaches from other schemes may be worth considering? The responses and written notes by partners, complemented by evidence from topic studies and national conclusions, are summed up in the following figure. This is structured according to the pattern of 'learning lessons' within the partnership: partners identify issues in their own schemes (A) and look for experience provided by other schemes (B).

Figure 7

Looking for experience on dual qualifications provided by other schemes

- according to quality criteria*) and types of national settings**) -

Scheme A = requiring experience
Scheme B = providing experience

Scheme A	Lessons	Criteria	Scheme B
(I)AT: WIFI Academy courses	Courses involve the risk of drop-out since they are designed as complete, all-inclusive training programmes. Therefore programmes with a modular structure could give new impulses.	C	(III)En(?)

Figure continued next page

Figure 7 continued

Scheme A	Lessons	Criteria	Scheme B
	Proposals for imparting both technical and general contents may be found in the German and Dutch models and possibly also in the British scheme.	C	(I)DE, (I)NL, (III)En
	From the Norwegian system of trainer-coaching Austria might take over some stimulating efforts like pedagogical training.	C	(III)NO
(I)CZ: Study branches	Starting out from experience with promoting dual qualifications in the Czech system, reform activities of other countries are observed and appreciated which lead to: • closer co-operation between institutions of general and vocational education (Finland); • providing general and vocational education programmes, routes or streams within one institution (England, Norway); • providing different levels of vocational education programmes within one institution (Netherlands); • involving general or common parts of education (e.g.England, Norway,) or enriching methods of their education (Germany); • introducing new concepts, contents and methods into curricula (e.g. core skills in England, new methods of teaching and learning in Germany); • making progress in practical training, incl. methodology and training of instructors and teachers (Germany); • developing VET programmes at advance level for those who possess lower level vocational qualifications (Austria, France); • making progress with programmes of dual orientation (e.g. increase in number of students in Portugal).	C, E	(I)AT, (I)DE, (I)NL, (III)En, (III)FI, (III)FR, (III)NO, (III)PT
(I)DE (Bavaria): Pilot projects	Young people gain both the qualification to enter a polytechnic (Fachhochschule) and to be skilled workers. Norway – in the so-called "two-plus-model" – has also managed to make the university entrance qualification an integral part of vocational training courses.	E	(III)NO
(I)NL: MBO/BOL4	There is a lack in general education, in preparation for social participation and citizenship; in this respect the schemes of France, Germany, Norway and Sweden set examples.	C	(I)DE, (II)SE, (III)NO
	For students with apprenticeship background, HE need to develop adjusted courses with a dual character (combining learning in the workplace with study within the school). Perhaps the Netherlands might learn from examples in Germany and Austria.	E	(I)AT, (I)DE
(II)SE: Vocational programmes	In the Norwegian system the students will benefit from a 2 year long period of apprenticeship at a chosen work-place. This should be compared to 15 weeks in the Swedish model.	C	(III)NO

Figure continued next page

Figure7 continued

Scheme A	Lessons	Criteria	Scheme B
	Since about 17% of the student have not completed their studies within four years there have been suggestions to market the apprenticeship as a possible path towards a school-leaving certificate. Germany's experiance from that concept would no doubt give valuable inputs to design a Swedish model.	C	(I)DE
(III)EL: IML	Maybe we can learn from the pilot projects on dual qualifications in Austria and Germany how educational environments and processes which focus on higher order learning skills look like. For instance, in Austria soft skills are integrated in the curriculum. Also, high achievers might be more attracted by training which emphasizes the acquiring of higher order learning skills.	C	(I)AT, (I)DE
(III)En: GNVQ	Czech study programmes contain a significant general education component and they all make use of oral assessment as an important assessment tool. It may be that other countries should consider making greater use of oral assessment within vocational education.	C	(I)Cz
(III)FI: Experimental reform	The scheme discussed in the Greek case study is an interesting example of integration of vocational and academic studies especially at curriculum level.	C	(III)EL
	The project EURO-BAC, coordinated by the Austrian partner, and its example of building standards for examination comprising subject-oriented and general knowledge and skills is interesting from the perspective of the limits which the Finnish Matriculation Examination has set for developing the DQ on the basis of inter-institutional cooperation.	C	(I)AT
	The GNVQ's in England might provide examples of adopting a variety of learning styles for the completion of qualifications in the Finnish scheme.	C	(III)En
(III)FR: Bac Pro	The British and Dutch systems allow a certain leeway with training time (advanced GNVQ, three and four years MBO courses), a possibility not provided by the French system, which would be interesting to examine in terms of the desire to develop life-long training programmes.	C	(I)NL, (III)En
	The evaluation issue brought up by the GNVQs strongly highlights issues in the French debate about certification and validation of knowledge and, from a particular angle, clarifies the debate about the possibility of disassociating training and certification.	C	(III)En
	The Norwegian system offers gradual access to specialisation, developed through an original tree-like pattern. For French questions about the issues of cross discipline skills and defining core curricula, the model is an original approach that could bring together specialists of the two countries.	C	(III)NO

Figure continued next page

Figure7 continued

Scheme A	Lessons	Criteria	Scheme B
	The Norwegian system of financial aid to the firms, during the third and fourth years of training is an interesting model when compared to the various French systems available to young people for training and facilitating the transition to professional life.	C	(III)NO
	German experimental programmes touch on the issue of integrating academic subjects with professional subjects, a very current debate in France that has been revived by the issue of validating acquired professional knowledge in the professional training system.	C	(I)DE
	The Austrian situation provides food for thought in the areas of training working adults, the role played by companies in this training and the recognition given to it by employers.	C	(I)AT
(III)NO: Vocational streams	The Norwegian system should capitalise from systems where practical work and work life learning and experiences are a base for theory-learning, and systems allowing more flexible planning of students' curricula. Actual examples may be the Brandenburg (Germany) scheme (work life learning) and the Swedish scheme (more flexible).	C	(I)DE, (II)SE
(III)PT: Vocational courses	Portugal could learn from countries with a longer tradition in vocational education and dual qualifications, where the school-enterprise cooperation is implemented with success, like Austria and Germany.	C	(I)AT, (I)DE
	The recent flexible modular system at U.K. with supervision of the national system of qualifications (NQCV) is an example with potentiality for creating new motivations to the students.	C	(III)En

*) Criteria of quality: C = competence development; E = educational mobility; O = occupational mobility;
**) Types of relation between education and work: I = close; II = loose; III = varied.

Altogether, 29 lessons have been drawn for 11 schemes (requiring or welcoming approach), with 44 references being made to 11 schemes (providing approach). Although this evidence is not based on any systematic inquiry and therefore does not lend itself to a systematic evaluation either, certain points are worth noting:

- Mutual learning among partners has been concerned, most of all, with curricular issues (26 lessons), hardly at all with educational and occupational mobility. This may be partly due to the focus set in the partnership project on issues related to curriculum and learning. There are, however, more fundamental reasons. The collaborative analysis of dual qualifications has shown that curriculum and learning processes are central to the reforms and pilot projects. These components are also essential for the success of the schemes, including the educational and occupational mobility of the students. Furthermore, curricular issues tend to be less determined by the national setting of the scheme than mobility issues which are tied up with the education system and the labour market respectively.

- Most of the lessons drawn from other schemes are related to the problems which have been identified in the original schemes (figure 6 - excluding the French scheme on which evidence is only available for figure 7). While the matching of encountered problems and envisaged lessons is hardly surprising, the exceptions are also illuminating. On the one hand, some problems may be specific to the national setting or just identified in the national context. In any case, answers to problems are sought first of all in the national environment. On the other hand, some lessons may have been inspired by noting advantages of other schemes and relating these to limits and weaknesses or orientations of one's own scheme.
- Lessons are drawn both across schemes of different types of national settings (27 references) and between schemes of the same type (17 references). This diverse pattern supports the assumption that mutual learning, in particular on curricular issues, is not limited by systemic differences.
- References are made to schemes of all three types, in most cases to the schemes of Germany, Norway, England and Austria. This choice may be partly explained by innovative approaches taken in these schemes which have attracted attention. However, another reason is likely to be the implicit direction of the learning process in the partnership: the first project (INTEQUAL) has provided the basis for the multiplier project (DUOQUAL), offering rich experience (including the four schemes above!) for the enlarged partnership.

A closer look at the content of the lessons reveals that approaches to integrating vocational and general education, to assessing competences and to improving the cooperation between institutions of education and work are in the centre of joint interest. These curricular issues may be regarded as central to dually oriented qualifications, also providing the basis for educational and occupational mobility. The major approaches considered as 'lessons' in individual schemes are set out below (countries of schemes in brackets):

Figure 8

Lessons from schemes of dual qualification

- combining technical and general contents in the curriculum (DE, NL);
- integrating general and vocational subjects (EL);
- providing practical work and work life learning as a base for theory learning (DE);
- arranging for an apprenticeship as optional period of work-based training (NO);
- offering a gradual access to specialisation according to a tree-like pattern (NO);
- preparing for social participation and citizenship (DE, FR, NO, SE);
- flexibility in planning students' curricula (SE);
- allowing for a variety of learning styles (En);
- oral exams facilitating synoptic assessment (CZ);
- giving a certain leeway with training time (En, NL);
- providing a flexible modular system (En);
- cooperation between institutions of general and vocational education (FI);
- providing general and vocational programmes in one institution (En; NO);
- providing different levels of vocational programmes in one institution (NL);
- developing vocational programmes at advanced level for those who possess lower level vocational qualifications (AT, FR);
- offering higher education of dual character for students with apprenticeship background (AT, DE);
- trainer coaching for integrated courses (NO);
- supplying financial aid to the firms for work based training (NO).

These approaches are of course integral part of the individual schemes and their national contexts. They could not, therefore, be 'transferred' to any other scheme or put together as 'ingredients' for improving or recreating it. However, the conceptual ideas behind them and the practice which they embody in each case may promote fresh thinking about related concerns in other schemes.

'Good practice' in schemes of dual qualification

The references to interesting approaches observed in other schemes are also an indicator of the success of dual qualifications, even if relative to the specific starting point of the learning process. In order to get a broader picture of successful experience, partners were asked about what works well in their schemes of dual qualification. Their assessment not only complements the previous look for approaches by other schemes; it also serves as a presentation of 'good practice' which may offer further stimulus to other schemes.

Figure 9

'Good practice' in schemes of dual qualification

- according to quality criteria*) and types of national settings**) -

Type	Scheme	'Good practice'	Criteria
I: close	AT: WIFI Academy courses	The introduction of the "Berufsreifeprüfung" marks the first time in Austria that practical knowledge and skills acquired in the course of professional experience is formally treated equal to theoretical knowledge acquired at school.	E
	CZ: Study branches	There is a high level of interest in educational programmes with dual orientation in the Czech Republic. The broad general and basic vocational background involved in educational programmes, which is suited with special vocational content and qualifications acquired, gives an appropriate flexibility in a large field of working functions and an appropriate level of competitiveness in admission procedures for tertiary level of education for graduates of the DQ programmes. The supply of three types of educational programmes, which are tailored for professionals, high skilled workers and adults with vocational qualification, makes our educational system flexible and adaptable to changes at the labour market. This combination of different types of DQ programmes with some common features could be seen as a worth applying approach.	C, O
	DE (Bavaria): Pilot projects	The following factors contributed considerably to the project's success: • the fact that only intellectually able and highly motivated students were allowed to participate; • the curriculum integrating vocational and general learning objectives; and • the close cooperation with industry, the partner of the schools in the dual system.	C

Figure continued next page

Figure 9 continued

Type	Scheme	'Good practice'	Criteria
	NL: MBO/BOL4	Both the educational and occupational mobility is successful: 30-40% go to higher education and graduates are also good prepared for occupational practice.	E, O
II: loose	SE: Vocational programmes	A large part of the yearly cohorts had access to upper secondary education, the majority was accepted on their first choice. The students at the national vocational programmes amounted to 56% (1993), of which 83% achieved their school-leaving certificate within four years (1997). The majority of students were pleased with their work place training. There is a positive correlation between work-place training and gaining an employment within one year after leaving school. Most students found employment in line with their choice of vocational programme. Employers have expressed satisfaction with the students' ability to read and write and their knowledge of mathematics and to perform public speeches, but they are stressing the importance of personal qualities.	E, C, O
III: varied	EL: IML	Three aspects of this scheme worked well: • the integration aspect (reflected in a fully integrated curriculum for the first two years of studies, with both, integrated learning activities present and a balanced mix of general and pre-vocational subjects, as well as a balanced mix of compulsory and elective subjects at least for the first two years of studies); • the career pathway aspect (manifested through a more effective occupational orientation in an integrated learning environment, where there was parity of status of general and vocational education); and • the higher education accessibility aspect (reflected in the success rate of the IML graduates in entering higher education institutions, following national competitive examinations).	C, E, O
	En: GNVQ	It is the quality of the teaching and learners that matters: where teachers and learners are committed, GNVQ can act as a 'middle pathway' to personal development, distinct from either academic or vocational pathways. Advanced GNVQ is relatively successful in offering a progression route into higher education.	C, E
	FI: Experimental reform	The DQ provision • enhances educational mobility between the two different lines within the Finnish educational system and offers an opportunity of access to HE for those students who have a clear interest in a specific vocational field; • provides flexibility concerning study times; • provides entrance level skills for the labour market and skilled occupation at an earlier age as compared to the old fashioned route of taking the ME first and the vocational qualification only after this.	C, E, O

Figure continued next page

Figure 9 continued

Type	Scheme	'Good practice'	Criteria
	NO: Vocational streams	Students' statuary right to 2+2 or 3 years of vocational education seems to work quite well. More young students start and complete senior secondary vocational streams, including apprenticeship training. Quite a large number chooses the third year as a year qualifying for HE. The common responsibility which school authorities and working life organisations have for offering apprenticeship placements proves to be quite successful. Most students feel comfortable with the class or school community and most teachers are positive about the reform. Everyday work in classes and the pedagogy for new competencies are central. There are examples of successful learning and good teaching as well as schools showing good practice and good results. There is also an awareness of the role of assessment and the need to work on the problems around 'dual culture' in school communities.	E, O, C
	PT: Vocational courses	Among the positive factors which characterise the vocational courses, we may refer to • the dynamic they give the schools and the innovation they introduce in the training like modular structure, work project and "alternance" between school and enterprise; • the professional qualification diploma, which is seen as a factor of social promotion, of employability and of transnational mobility.	C, O

*) Criteria of quality: C = competence development; E = educational mobility; O = occupational mobility;
**) Types of relation between education and work: I = close; II = loose; III = varied.

This assessment of what works well in a given scheme mostly relates to the national context, contrasting the dual qualification with conventional patterns of vocational and general education at upper secondary level in the country concerned. The evidence of 'good practice', therefore, is specific to the individual scheme and internal national debate. This distinguishes 'good practice' from the 'lessons' (figure 7) which are related to perceived issues or problems of other schemes. Furthermore, 'good practice' is more focused on what actually works well, based on internal enquiry and evaluation, while 'lessons' might refer to both practical experience and conceptual approaches.

The major output of 'good practice' established in schemes of dual qualification is summed up below, grouped according to the three aspects of quality, with the countries noted in brackets.

Figure 10

'Good practice' in schemes of dual qualification

Curriculum/ competence development

- broad general and basic vocational content in educational programmes (CZ);
- integration of vocational and general learning objectives/ subjects (DE/ EL);
- flexibility concerning study times (FI);
- focus on everyday work in classes and pedagogy for new competences (NO);
- dynamics and innovation in schools (PT);

Education system/ educational mobility

- participation of large age group (CZ, NO, SE);
- attractiveness for high-achievers (DE, FI);
- common certification for various dually qualifying pathways (AT);
- enhancement of educational mobility between general and vocational lines (FI);
- progression route into higher education (En);

Labour market/ occupational mobility

- close cooperation with industry (DE);
- social promotion and employability through professional diploma (PT);
- work-place training as factor for gaining employment (SE);

Both educational and occupational mobility

- combination of different types of dual qualifications for individual target groups (CZ);
- both access to higher education and entry to occupational practice (EL, FI, NL);
- shared responsibility of school authorities and working life organisations (NO).

The above mapping of 'good practice' partly corresponds to the evidence which has been reported in the lessons (figure 7), but it opens up a wider spectrum of positive experience. The evidence of 'good practice' refers to all aspects of quality: both competence and educational/occupational mobility. This is important for underpinning the assumption about the potential of dual qualifications in meeting the quality criteria of VET. Furthermore, 'good practice' is reported across the whole range of schemes involved in the project. In particular the evidence of the newly included schemes (Czech Republic, Greece, Finland and Portugal) enriches the partnership experience about dual qualifications.

Conclusion

The results of mutual learning back up hypotheses which were put forward in earlier phases of the partnership project, in particular the following:

- **Dual qualifications potentially live up to the criteria identified for high standing of VET: providing personal competence and facilitating mobility both in the education system and the labour market.** Both the assessment put forward by partners at the roundtable and the evidence from the detailed comparative survey of the schemes (Manning 1998) support this hypothesis. To a considerable extent, dual qualifications meet the quality criteria not only 'potentially' but in real terms; at the same time they show a significant potential for advance and improvement.

- **There is considerable opportunity for the exchange and transfer of experience across schemes and national systems.** The final roundtable discussion provides rich evidence for this hypothesis. More specifically it suggests that curricular approaches, in particular competence development, are more open for mutual learning across schemes than issues of educational pathways and of occupational careers (which are more firmly embedded in national settings). It should be noted, though, that the 'exchange and transfer of experience' as practised in the process of 'mutual learning' within the partnership is confined to the conceptual level, while the practical implications are left open.

The lessons identified by the partnership are to be taken up at national and European level for detailed discussion with policy makers, practitioners and researchers in education. The rich evidence displayed in the DUOQUAL Knowledge Base can support this process of continued learning.

Annex: Projects

EUROPROF / LEONARDO DA VINCI Surveys and Analyses project (1995-1997).
Title: New forms of education of professionals for vocational education and training.

INTEQUAL / LEONARDO DA VINCI Surveys and Analyses project (1995-1997).
Title: The acquisition of integrated qualifications for professional work and study - an assessment of innovative approaches in seven European countries.

DUOQUAL / LEONARDO DA VINCI Multiplier-effect project (1997-2000) based on INTEQUAL.
Title: Qualifications with a dual orientation towards employment and higher education - applying a pattern of comparative investigation across European countries.
Coordinator (INTEQUAL/DUOQUAL): Sabine Manning, Research Forum Education and Society (WIFO), Berlin.
Partners (I=INTEQUAL; D=DUOQUAL):

Berufsbildungsinstitut Arbeit und Technik (BIAT), Universität Flensburg, Germany (D);
Centre d'Etudes et de Recherches sur les Qualifications (CEREQ), Marseille, France (I);
Cooperativa Marcella, Lurago Marinone, Italy (D);
Department of Educational Research, Roskilde University, Roskilde, Denmark (D);
Faculdade de Ciências e Tecnologia – Ciências da Educação, Universidade Nova de Lisboa, Monte de Caparica, Portugal (D);
HIAK Akershus College, Bygdoy, Norway (I/D);
Institut für Bildungsforschung der Wirtschaft (ibw), Wien, Austria (I/D);
Institut Technik und Bildung (ITB), Universität Bremen, Germany (I/D);
Institute for Educational Research (IER), University of Jyväskylä, Finland (D);
Institute for Employment Research (IER), University of Warwick, England (I/D);
National Institute for Pedagogical Research (INRP), Paris, France (D);
Pedagogical Institute (P.I.), Ministry of Education, Athens, Greece (D);
Research Institute of Technical and Vocational Education (VÚOŠ), Prague, Czech Republic (D);
SCO Kohnstamm Instituut, Universiteit van Amsterdam, The Netherlands (I/D);
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POST-16 STRATEGIES / LEONARDO DA VINCI Surveys and Analyses project (1995-1997).
Title: Finding new strategies for post-16 education by networking vocational and academic/general education and working life to improve the parity of esteem for initial vocational training.
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SPES-NET / LEONARDO DA VINCI Multiplier-effect project (1997-2000) based on POST-16 STRATEGIES.
Title: Sharpening the post-16 education strategies by horizontal and vertical networking.
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References

Attwell, G. (1997). Towards a community of practice for vocational education and training professionals. In: A. Brown, **Promoting vocational education and training: European perspectives**. Hämeenlinna: University of Tampere (pp. 3-11).

Brown, A. & Manning, S. (Eds.) (1998). **Qualifications for employment and higher education: a collaborative investigation across Europe**. Hämeenlinna: University of Tampere (Ammattikasvatussarja; 18).

Heidegger, G. (1996). **New forms of basic and further education of professionals for vocational education and training**, EUROPROF working paper. Bremen: Institut Technik und Bildung.

Heidegger, G. (2000). Future trends in European vocational education. In: In: M.-L. Stenström & J. Lasonen, **Strategies for reforming inital vocational education and training in Europe**. Jyväskylä: Institute for Educational Research, University of Jyväskylä (pp. 266-279).

Kämäräinen, P. (1998). What kind of key qualifications should be integrated to curricula in the near future according to a "horizontal approach"? In: **Development of vocational qualifications and competencies**, European Vocational Training Conference, Basic Documents, 3 and 4 July 1998 Vienna, Federal Ministry of Education and Cultural Affairs (pp 5-17).

Kämäräinen, P. (2000). Parity of esteem as a challenge to European cooperation as reflected in the POST-16 STRATEGIES /SPES-NET and INTEQUAL/DUOQQUAL projects. In: M.-L. Stenström & J. Lasonen, **Strategies for reforming inital vocational education and training in Europe**. Jyväskylä: Institute for Educational Research, University of Jyväskylä (pp. 302-315).

Lasonen, J. (1998). Shared learning. In: J. Lasonen & M. Young (Eds.), **Strategies for achieving parity of esteem in European upper secondary education**. Jyväskylä: Institute for Educational Research, University of Jyväskylä (pp. 169-185).

Lasonen, J. & Manning, S. (1998). Analysing strategies and qualifications in two LEONARDO research partnerships - issues of transnational research in collaboration. In: M. Mulder (Ed.), **Vocational Education and Training Research: Proceedings of the VETNET program at the ECER conference on 17-20 September 1998 in Ljubljana, Slovenia** (pp. 1-7).

Lasonen, J. & Manning, S. (1999). **How to improve the standing of vocational as against general education – a comparative investigation of strategies and qualifications across Europe**. Jyväskylä: Institute for Educational Research, University of Jyväskylä; Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. (A contribution to the CEDEFOP Research Report II, to be published in 2000).

Manning, S. (Ed.) (1996). **Qualifications with a Dual Orientation towards Employment and Higher Education: A Comparative Investigation of Innovative Schemes in Seven European Countries.** **INTEQUAL Report I**. Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. (WIFO).

Manning, S. (Ed.) (1997). **Qualifications with a Dual Orientation towards Employment and Higher Education: A Collaborative Investigation of Selected Issues in Seven European Countries.** **INTEQUAL Report II**. Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. (WIFO).

Manning, S. (Ed.) (2000). **Dually-oriented qualifications: a knowledge base related to the LEONARDO projects INTEQUAL/DUOQUAL**. Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. (WIFO). Internet: <http://www.b.shuttle.de/wifo/duoqual/=base.htm> (first set up: 14 August 1999).

Stenström, M.-L. (2000). Impacts of and experiences from the SPES-NET project. In: M.-L. Stenström & J. Lasonen, **Strategies for reforming inital vocational education and training in Europe**. Jyväskylä: Institute for Educational Research, University of Jyväskylä (pp. 253-257).

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End user computing at a South African Technikon: Enabling disadvantaged students to meet employers' requirements.

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1 Context

In terms of the number of end-users of information technology (IT), there has been tremendous growth and an increasing awareness that successful management of end-users is of enormous strategic value to the organisation in which they function. For developing countries like South Africa it is imperative for economic survival that there be a body of workers with sufficient skills in the use of IT to enable the country to participate in the global economy. Thus it is not sufficient for end-users to be equipped with a working knowledge of the currently popular IT application packages only, they need to be educated to become informed and innovative users of knowledge who have the ability to recognise and seize strategic advantage at whatever level they work within the economy. Institutions like the Technikon commit a large percentage of their capital and human resources to the training of computer end-users, and it is imperative that the courses they offer be evaluated as to their effectiveness in producing innovative end-users, and that they be improved upon or restructured if necessary.

The South African government, too, is aware of the need to raise the technological skills and work competencies of the workforce. To quote from the 1997 White Paper on Science, Engineering and Technology:

> *Government has a responsibility to promote a science culture, science education and literacy among both children and adults to keep them up to date with the impact of new technologies. As part of this drive government can strongly influence the attainment of equity by providing incentives to encourage disadvantaged groups to study mathematics, science and computer literacy.*

Hager et al (1994) define a competency as the ability to transfer and apply skills to new situations and environments as they occur in the workplace. The Finn Report (1991) defined several key competencies for tertiary institution education and training programmes. Among them was an understanding of technology along with problem-solving capability.

Stevenson (1990) points out that occupational analysis has emerged as a primary basis for curriculum design and that industry is playing a greater role in curriculum design at TAFE's. (Training and Further Education institutions). He goes on to say (Stevenson, 1991) that the development of key areas of competence such as those identified by Finn (1991) will require close attention to the learning tasks set for students and the skills that these tasks are designed to develop. Some research into end-user computing (EUC) education and training refers to a profile of an effective, innovative end-user in the developed world. Panko (1988) refers to a skills hierarchy that can be used to map the development of the end-user. This skills hierarchy goes from basic use skills through comfort use skills to good practice and finally to innovation. Panko is not alone in the attempt to classify end-user skills and categories of end-users. Juliff (1990) maintains that there is a continuum of skills and involvement within the end-user community that goes from an "informed user" to a "proficient user" to a "developer". In a study on learning the Unix operating system, Doane *et al* (1990) found that students only moved up from novice to intermediate level, or intermediate to expert, but not novice to expert during the two-year period of their investigation. Moreover some performances actually regressed over this time. Nilsen *et al* (1993) also discovered that MBA students with 16 months spreadsheet experience were considerably less skilled in some associated tasks than people with 4 years spreadsheet experience. Thomas (1998) showed that, on average, the slowest freshmen computer scientists just caught up in 2 years to the typing speed their fastest colleagues enjoyed at entry to university, but of course the faster typists had by then become even more rapid. Such skills profiles could prove to be very valuable when attempting to establish the goals at which technikons' EUC students and trainers might aim.

The Technikon's EUC department offers a course on basic end-user skills to 11 client departments that range from Fashion Design to Mechanical Engineering. The current course is identical in structure and curriculum for each of the client departments' students. In some client departments the course runs for a semester whilst in others it runs for two semesters. The students work in laboratories containing 25 computers on average and each class is given a 135-minute lecture/practice slot per week. Owing to a shortage of computers, there is not any practice time allocated and students have to stand in line in the evenings to get a chance to use a computer in the heavily populated laboratories. While

Research Questions

(3) What is the nature of entering technikon students' technological environment?
(4) What is their understanding of computers?
(5) What are their expectations of the benefits of an EUC course?

2.3 Research Methodology

The over-arching research framework is evaluation research. Evaluation research examines the effect of a programme on its students and teachers according to the goals the programme is meant to achieve. It employs objective and systematic methods to assess to what extent the goals are realised and look at the factors associated with successful or unsuccessful outcomes. (Weiss, 1972; Shulha & Cousins, 1997). The researcher was guided by Denton (1973) who devised a plan for evaluating a vocational programme. The main elements of the plan are: needs assessment, development of philosophy, writing of objectives, data collection, data analysis and formulation of recommendations. Within this framework the researcher acknowledged the importance of interactions between the technology and the social setting in what she was studying and considered it essential that her research design took into account the social and political dimensions of the research setting if it was to be relevant and significant.

3 The DACUM approach

In order to address the first research question outlined above the researcher decided to use a DACUM **(Developing A Curriculum)** to identify the skills required of competent computer users in the workplace.
The DACUM method closely resembles that of the focus group. Focus groups combine elements of both interviewing and participant observation and capitalise on group dynamics (Lederman, 1990). The hallmark of focus groups is the explicit use of the group interaction to generate data and insights that would be unlikely to emerge without the interaction found in a group. DACUM uses this approach to occupational analysis. Coffin, 1993 claims that it is an effective method of quickly determining at relatively low cost, the skills that must be performed by persons employed in a given job or occupational area. The DACUM method is based on the following assumptions:

- expert workers can describe and define their job more accurately than anyone else
- any job or outcome can be described in terms of the tasks expert workers perform
- all skills have direct implications for the knowledge and attitudes that workers must have in order to perform the skills correctly.
  (Coffin & Morin, 1998; University of Illinois Curriculum Center, 1997).

According to Coffin, 1993 and Stammen & Vetter, 1994, the profile chart that results from the DACUM analysis is a detailed and graphic portrayal of the duties and skills involved in the occupation or job being studied.

3.1 The DACUM and programmes in educational institutions

The skills that are verified as important by the DACUM process can become the research base for developing modules or other units of instruction for educational programmes. During the instructional development phase that follows the DACUM process, the verified skills undergo a skill analysis to determine the specific skills, knowledge, and attitudes the worker needs to perform each skill. The information resulting from the skill analysis is then incorporated into modules, learning guides, or other types of instructional materials for student and teacher use. According to Harris (1982), the DACUM is particularly well suited for educational institutions that are implementing or are planning to implement competency-based education for training programmes since the first essential step in any such programme involves the identification of the skills upon which the instructional programme will be based.

Harris (1982) maintains that the main reason for using DACUM has been the desire of many vocational educators to establish a relevant, up-to-date, and localised curriculum base for instructional programmes. Clearly, a curriculum base that is soundly determined with maximum input from the businesses and industries that are going to employ the students prepared by vocational and technical education institutions is needed. One additional benefit of DACUM is its public relations value to the educational institution or other agency doing the DACUM. When employers realise that an educational institution really wants industry to help them identify the competencies needed by workers in their fields, there is increased support of the educational institution in a variety of ways by local business and industry. Harris goes on to maintain that while the public relations value of DACUM is secondary to its main purpose, its significant, long-term impact is too important to overlook or lightly dismiss.

3.2 Using the DACUM to get information from external parties for the EUC course skills

In September 1998 a DACUM was held to get input from local business and industry as to the skills required by competent computer users. In setting up the DACUM process, the researcher was guided by the literature, which states this process relies on two critical factors for its success. The first and foremost is selecting the right panel. A DACUM panel should consist of six to twelve employees who are considered the very best in the field and who are currently doing the function, not lecturers or work supervisors. Lecturers tend to push the panel toward their own training programmes. Some employees can be intimidated by their supervisors and not participate fully in the development of the DACUM. (Norton, 1998.) The second critical factor is a trained DACUM facilitator who can guide the group through the process without prejudice and who can ensure that they can reach consensus on every item on the chart. A facilitator with little job knowledge will produce a better chart than a facilitator with detailed job knowledge. (Coffin, 1993).

Accordingly, a sample of local firms was contacted and each asked to send an employee whom the employer judged to be a competent computer end user to a workshop. The panel that met comprised 9 people. During the workshop a trained DACUM facilitator elicited from the employees the computer skills and personal attributes that they deemed to be vital to an employee entering the workplace. The facilitator was the Academic Development Officer of the Technikon who had attended a two-week DACUM training course. She had a general knowledge of word processing, but did not consider herself to be an expert in the end user field. The facilitator asked the group first to arrange the duties according to process sequence or importance level and then to identify the tasks performed for each broad functional category. These tasks were in turn analyzed for the requisite knowledge and skills and then collapsed into main tasks and rated on a scale for frequency and for importance. The higher the value, the more important the task was to the overall function of the end user. Each panel member had to accept all entries on the charts. Compromises were made and consensus was reached. In the case of consensus not being reached quickly, the facilitator asked the group to "park" the item for later discussion. Such items were then revisited, the differences were worked out and a consensus was reached. This process created for each panel member a very strong sense of ownership in the DACUM chart.

The last step in the DACUM process was to give each member of the DACUM group, the EUC lecturers, and the client departments and work supervisors an opportunity to comment on the DACUM chart. A copy of the chart was sent to each member of the focus group and they were asked to submit their comments/concerns. A structured interview/questionnaire based on the DACUM chart was conducted with work supervisors in industry and by the heads of the departments served by the EUC course. Lecturers of the EUC course were invited to comment on the chart during a staff meeting.

3.3 The DACUM findings

3.3.1 The DACUM chart

Functions	**Tasks in order of importance**						
A Use the Computer to Create Effective Documents	A-1 Apply typing rules	A-2 Manage layout	A-3 Manipulate contents	A-4 Import and export files	A-5 Manage printing & graphics	A-6 Create tables & graphs	

B **Personal Attributes**	B-1 Share knowledge	B-2 Structure individual tasks	B-3 Use initiative	B-4 Work quickly & accurately	B-5 Be willing to learn	B-6 Prioritise tasks	B-7 Be patient
	B-8 Explore	B-9 Use judgement (Creativity vs. Conformity)	B-10 Know own ability	B-11 Work methodically	B-12 Interpret & represent ideas	B-13 Be willing to change	B-14 Participate in ongoing training
C **Basic Working Knowledge of Applications**	C-1 Identify program functions	C-2 Do word processing	C-3 Manage output	C-4 Use back-up systems	C-5 Use e-mail	C-6 Create a spread sheet	C-7 Access & distribute Internet info
D **Knowledge of Basic Computer Capabilities**	D-1 Operate computer components	D-2 Know of new computer technology developments	D-3 Manage files	D-4 Navigate operating systems			

FIGURE 1: DACUM chart summing up focus group's findings on EUC skills

3.3.2 Follow-up interviews with work supervisors

A series of follow-up interviews combined with a questionnaire based on the DACUM chart were held. Eleven work supervisors from local business and industry were interviewed. They were first asked to give their opinions as to which computer-related and non computer-related skills were important for competent computer users The most common responses to these two open-ended interview questions are summed up in the charts that follow (Figures 2,3).

n=11

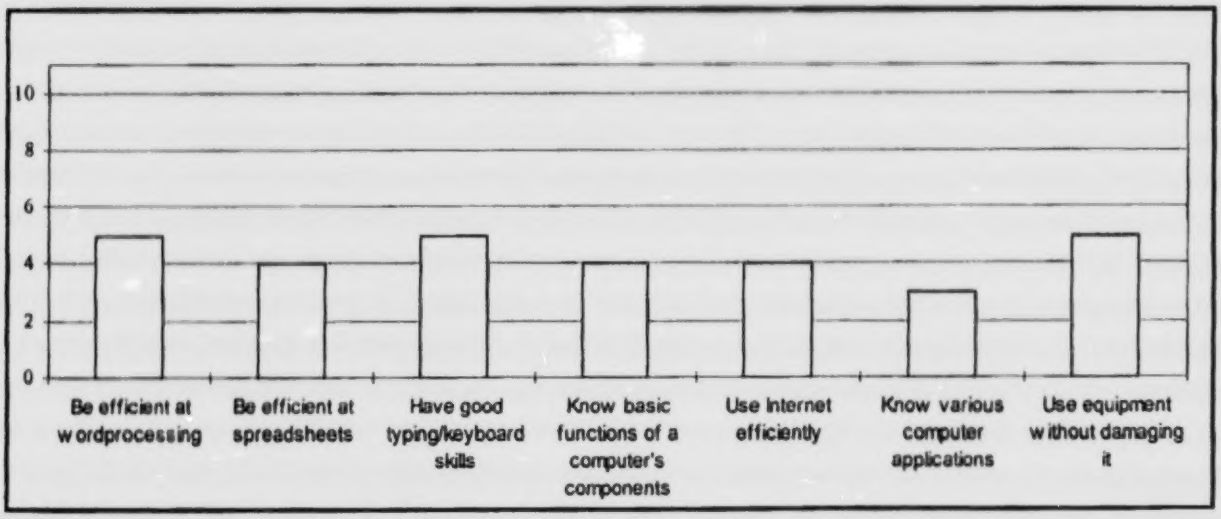

FIGURE 2: Summary of important computer-related skills according to work supervisors

n=11

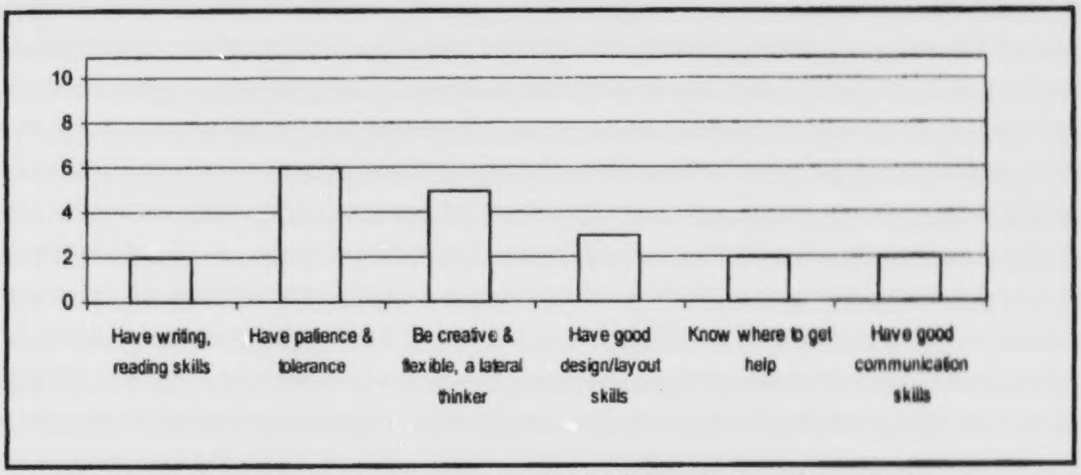

FIGURE 3: Summary of important general or non computer-related skills according to work supervisors

They were then asked to rate the findings of the DACUM focus group on a 4-point scale questionnaire ranging from "not important" to "extremely important". Only the first seven of the DACUM's tasks for the "Personal Attributes" function were used for the questionnaire because of time and conformity constraints. The results of the questionnaires are given in the table below (Figure 4). In this table, the tasks that more than 50% of the work supervisors considered to be "extremely important" are italicised.

SUMMARY OF RESPONSES BY WORK SUPERVISORS TO THE QUESTIONNAIRE BASED ON THE DACUM CHART

n=11

	NOT IMPORTANT	LIMITED IMPORTANCE	IMPORTANT	EXTREMELY IMPORTANT
USING THE COMPUTER TO CREATE EFFECTIVE DOCUMENTS				
Be able to apply typing rules	0	3	3	5
Manage layout	0	0	3	8
Manipulate contents	0	0	4	7
Import and export to and from other files	0	4	3	4
Manage printing and graphics	0	0	5	6
Create graphs	0	5	3	3
PERSONAL ATTRIBUTES				
Be able to share knowledge	0	4	4	3
Be able to structure individual tasks	0	0	7	4
Be able to use own initiative	0	0	6	5
Work quickly and accurately	0	0	5	6
Be willing to learn	0	0	3	8
Be able to prioritise tasks	0	1	4	6
Be patient	0	2	5	4

BASIC WORKING KNOWLEDGE OF COMPUTER APPLICATIONS				
Be able to identify the functions of an application	0	0	4	7
Be able to do word-processing	0	0	3	8
Be able to manage output	0	1	7	3
Know how to use back-up systems	0	2	5	4
Be able to use e-mail	0	1	6	4
Be able to create a spreadsheet	0	0	6	5
Be able to access and distribute Internet information	0	2	4	5
KNOWLEDGE OF A COMPUTER'S CAPABILITIES				
Know the operation of all the computer's components	1	4	3	3
Know the new developments on the computer front	1	1	6	3
Be able to manage the computer files	0	0	3	8
Be able to navigate around the computer's operating system	0	0	3	8

FIGURE 2: Summary of responses of work supervisors to the DACUM chart

3.4 Discussion of DACUM results

3.4.1 Personal attributes/general skills

What is most noticeable about the DACUM chart is that although the focus group ranked the ability to use the computer (typing, layout, etc.) to create effective documents as the most important EUC function, they ranked personal attributes a close second - before knowledge of computer applications and computer capabilities. Also of significance was that these personal attributes had 14 related tasks compared to the 6 or 7 of the other functions. These personal attributes are concomitant with lifelong learning and the skills necessary to pursue it - particularly in the IT field where technology is ever-changing. The focus group through their work experience highlighted in practical terms what so many researchers in IT nowadays are stressing, namely that computer literacy is dynamic because the technological medium is changing so rapidly. The constant change and upgrading of computer technology means that people have to adapt in order just to cope with changes in software let alone learn new functionality. (Hatton, 1998; Keissler *et al*, 1999; Thomas, 2000). They have seen in their own work situations that the learning process needs to be increasingly based on the capacity to find, access and apply knowledge. In this new paradigm, where learning to learn is more important than memorising specific information, emphasis is placed on information search and analytical skills and on reasoning and problem-solving skills. During the interviews with the work supervisors, similar competencies were stressed. In Figure 4 it is seen that patience, tolerance, creativity, flexibility and lateral thinking were high on their list of important general skills. On the questionnaire, the majority (91%) of work supervisors agreed that the personal attributes set out in the DACUM chart were important or extremely important.

What is also of interest is that the work supervisors added to the DACUM's pool of personal attributes good communication, organisational, reading and writing skills and knowing where to go to get help. These attributes, not suprisingly, pertain largely to the smooth running of an organisation. Salmi (1999) echoes these views:

> *Competencies such as learning to work in teams, peer teaching, creativity, resourcefulness and the ability to adjust to change are also among the new skills to which employers seem to put worth in the knowledge economy.*

3.4.1 Computer-related skills

Topping the DACUM focus group's list of computer-related functions was the ability to create effective documents. 82% of work supervisors regarded the tasks that went with this function as important or extremely important. It was interesting that the focus group singled out typing ability to be the most important of the 6 tasks. Landauer (1995) agrees with them and regards touch typing as fundamental for computer literacy. The third function on the DACUM chart was a basic working knowledge of computer applications including the use of e-mail and the Web. During their interviews the work supervisors put forward very similar tasks with efficiency in wordprocessing and keyboarding skills topping their list together with using the computer equipment without damaging it! 92% agreed that the focus group's tasks in this category were important or extremely important. The last function was that of having a basic knowledge of a computer's capabilities and included tasks like knowing how to navigate around the operating system and being upfront with new IT developments. 84% of the work supervisors also thought these tasks to be important or extremely important. The only task on the chart that the work supervisors did not give overwhelming support for was the need to know how all the computer's components operated - only 55% thought this to be important or extremely important. To sum up, it can be said that there was very strong agreement between the worker and the work supervisors on the skills and competencies needed by efficient computer users in the workplace.

4 The computer awareness/technological environment survey

In January and February 1999, a sample of 365 entering technikon students in their first week of attendance were asked to participate in a survey of their technological environment and an assessment of their computer awareness. The students were drawn from 3 historically disadvantaged technikons: 262 students (from all client departments) came from Technikon A in the Eastern Cape, 60 Marketing students were drawn from Technikon B in Kwa-Zulu Natal and 43 Human Resource Management students came from Technikon C in the Western Cape. The survey section that investigated the student's technological environment gathered information on the types of technology used in the home (such as microwave ovens, video recorders, computers, etc) and in the school. The computer awareness test was designed to assess basic knowledge of computers as well as the student's understanding of the role of the computer in modern society and his/her expectations of the benefits of a computer literacy/EUC course. Also included in the instrument was a section that gathered information on some of the student's personal details (home language, gender, etc).

The test was composed and administered in both English and the most appropriate mother-tongue language (either Xhosa or Zulu). The students were encouraged to use either their mother-tongue language or English when responding to the questions. Efforts were made to ensure that the translated tests were equivalent to the original by using back-translation (Ellis, 1989).

4.1 Students' technological environment assessment

Of a possible 18 modern devices that would be commonly found in the homes and schools of students in developed countries, the majority of the students in the whole sample from the technikons had access to fewer than 9. Set out below in FIGURE 5 are the devices in question and the percentage of students who had access to them.

Device	%	Device	%	Device	%
Electricity in home	87	Video recorder in home	41	Washing machine in home	32
Electricity in school	85	Tape recorder in home	71	Microwave oven in home	30
Computer in home	10	Camera in home	47	CD player in home	59
Computer in school staffroom	65	Video camera in home	12	Calculator in home	85
Computer in school office	67	Telephone in home	72	TV games in home	32
Television in home	88	Access to cellphone	37	Computer games in home	9

FIGURE 5: The percentage of positive responses from the whole sample to the question on technological environment.

The sample from the researcher's own technikon fared less well than the whole sample in that only 6% had a computer at home and 7% had played computer games. In a recent survey (January 2000) of one EUC class at this technikon, (electrical engineering students), the researcher found that only 1 of the 25 students had even touched a computer and that that student had used the machine to play games at his friend's house.

4.2 Assessment of students' computer awareness and expectations of the benefits

of an EUC course

The computer awareness test comprised 3 sections. The first section tested basic computer facts. The second section assessed the student's understanding of the role played by computers in modern society:

Example

In South African society computers are used in everyday life for lots of things, for example – pilots use them to help them fly the plane. List the places where you think computer technology is being used.

The third section assessed the student's expectations of the EUC/computer literacy course that he/she was about to undertake:

Example

Write down the benefits that you think that this computer course will have for ***you****. In other words how do you think this computer course will be useful to* ***you****? Write down as many benefits as you can think of:*

The sample as a whole scored an average of 42% for computer awareness. As was to be expected, there was a high correlation factor (0.71) between the students' expectations of the benefits of an EUC/computer literacy course and their computer awareness scores. When the results of each of the 3 sections were analysed it was found that the whole sample scored 73% for computer facts, 27% for awareness of the computer's role and 34% for expectation of the benefits of a computer literacy course. These results are shown below in Figure 6.

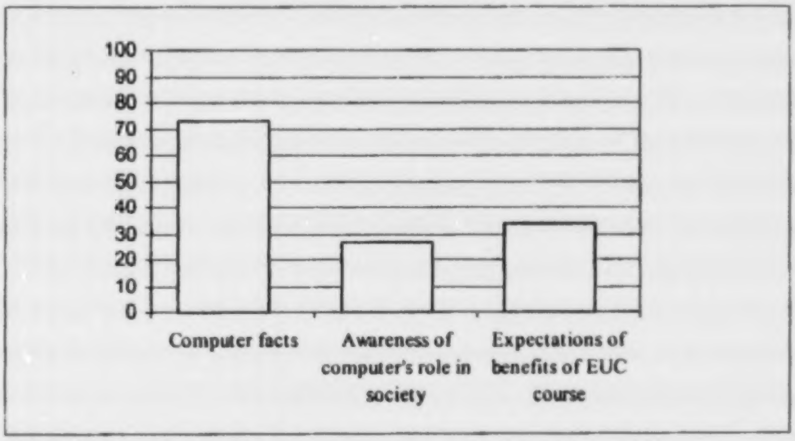

FIGURE 6: Breakdown of Computer Awareness results from whole sample

4.3 Discussion of the results of the investigation into entering students' computer awareness and technological environment

There are several interesting points that can be made about these results. The most obvious lack is that of a computer in the home. It goes without saying that children who are not brought up with a computer and are unable to use it as a tool in their studies or as an adjunct to imaginative play are seriously disadvantaged in our increasingly computer-based society. It is also of interest that there was a low positive response to those devices that require digital knowledge and dexterity such as computers, cellphones, microwave ovens and video cameras. In the developed world and in the more affluent sections of South African society, children grow up immersed in a world of computers and other information technologies. They play TV games; they use CD-ROM encyclopaedias and the Internet for project work; they help their parents program the computerised controls of videocassette players and edit family home videos from their last holiday. These experiences give them a different way of interacting with information technology compared to those children from technologically disadvantaged home environments. Cultural values that are embedded in software also affect individuals during adolescence as these individuals start playing computer games. Spertus (1991) states that several studies show that individuals who have played computer games are more likely to do well in their first computing course. It seems obvious that individuals, who have used computers during their youth whether as an educational or a recreational tool, will be more experienced in computer use and will display a resulting comfort with and affinity for computing. This can have a strong effect on the study of end user courses (Pearl *et al,* 1990). They go on to state that there is a strong cultural component within tertiary computer skills classes. Students who are knowledgeable about computers are differentiated by special names (such as wizards, gurus, hackers) and are given elite status. This social structure can seem "chaotic and confusing" to students, and can result in students "dropping out" due to their feelings of being alienated from this foreign culture.

Most of the students in this survey had access to television and tape-recorders, but it must be emphasised that these media are essentially linear and their users have little control over the information they receive; they follow the flow of information according to a predetermined path. This lack of exposure could have consequences for such a student's self -confidence when working with computer hardware and applications software and other interactive technology.

The sample's average score on computer facts was high (73%) and they had obviously heard about computers and what they did. But it is interesting to note that this information appeared to be superficial and of little conceptual value in that the members of the sample as a whole were not very aware of the pervasiveness of computer technology within today's society and were not able to visualise the benefits of an EUC course. Most of the responses received regarding the benefits of a computer skills course fell into the categories of "being able to use a computer" and "sending e-mail to my friends". According to leading educational theorists such as Jonassen (1994), Berryman (1991) it is important for learners to have expectations of the phenomena they encounter if they are to truly create their own meanings and understanding; students who have high expectations of the outcomes of the learning process are inclined to be more successful than those with limited expectations.

5 Possible interventions

5.1 Using the DACUM chart and follow-up interviews

5.1.1 Curriculum development

There are many ways that a DACUM chart can be used. Because it has been produced by experts in the field and is practical, rather than theoretical. It can be used for developing the EUC course's curriculum. Specific performances that are needed to be successful in computer skills have been identified and lecturers can take these performances, write objectives, create learning activities, and evaluate students' success in achieving them. Advisory committees can assess this curriculum, using the DACUM chart. They can look at specific performance statements and let the technikon know whether these continue to fill a current need in that occupation or have changed. They can easily help the technikon update its course by letting them know of new performances that are needed since the DACUM gives them specifics rather than just a general description of the technology.

5.1.2 Strengthening bonds with local business and industry

One of the biggest obstacles for the students in attaining computer skills at the technikon is the lack of computer access (as discussed above). There is a shortage of both laboratory space and computers. It is acknowledged (Thomas, 2000; Doane *et al,* 1990) that to develop a reasonable level of skill, even in a narrow range of tasks, requires solid practice. If there is little access to the technology, the rudimentary skills learnt in a course will wither. The least skilled will actually go backwards if they do not develop their skill through practice and other means (van Dijk, 1997). Care was taken during the course of the DACUM and during the follow-up interview to involve both expert workers and key work supervisors. This has resulted in those businesses and industries feeling that they are supporting specific skills development. It is hoped that, because of this feeling of support, they will be more willing to donate funds and equipment to the technikon for fulfilling the educational goals. It is also important for the experiential training of the technikon students that such a relationship is formed. There is also the benefit that students who have been trained in EUC skills at the technikon are immediately on a competitive basis with other employees, since their training comes from curricula based on charts developed by industrial and business representatives.

5.1.3 Aiding the articulation process

Another benefit of the DACUM chart to the EUC course is that of articulation. It will be easier to avoid duplication effort on the part of students who could move rapidly to more advanced skills. It will also be easier to assess the prior learning and/or experiences of students coming in with related work or educational experience.

5.2 Using the computer awareness results

Strategic interventions are required to improve these students' understanding of the underlying computer concepts and principles and to give them the confidence to use computer applications to solve problems. Recent studies show that there is a distinct relationship between a student's belief structure (self-efficacy) and his/her performance. Bandura (1977) and Betz and Hackett (1997) maintain that self-efficacy is influenced by a person's expectations about his/her capacity to accomplish certain tasks. Furthermore they postulate that there is a distinct relationship between self-efficacy expectations and an individual's socio-contextual environment. When students have a low self-efficacy expectation regarding their behaviour (e.g. mastering computer skills), they limit the extent to which they participate in an endeavour and "switch off" at the first sign of difficulty. It is possible that efficacy-based interventions could increase the range of students' experiences and promote the personal and contextual factors that lead to positive self-efficacy expectations. Some strategies are suggested below.

5.2.1 Fast-tracking students' confidence in computers

It is important to remember that many technikon students have had little or no opportunity to work or play on computers. The introductory section of an EUC course should involve intensive activities that promote general computer-handling skills. Use could be made of computer games, multimedia demonstrations or simple keyboarding tutors to promote the students' confidence and to bridge the gap between them and those who have grown up with computers in their homes and schools. Wherever possible students should be made aware of the role played by computers in their everyday lives and within the broader context of the South African and global economy.

5.2.2 The EUC course is grounded in contextual and problem-based learning

The EUC course needs to focus on the application of knowledge and skills in the context of the students' real-life experiences and within the context of their diploma curricula. Tasks should be problem-based and reflect the real issues of the students' world.

5.2.3 Lecturers should help students improve self-efficacy beliefs

Lecturers need to act more as learning resources rather than as judges. They should regard errors as useful to the learning process and not evidence of failure. Personal standards rather than normative standards should influence their feedback to the students. Assessment should be non-threatening and seen in the light of the overall learning process. In the spirit of outcomes-based education, assessment should be offered to the student when he/she feels ready for it and the student should be able to retake tests if necessary. The lecturer needs to be as supportive as possible.

5.2.4 Students play an active role in their learning

Students need to be encouraged to reflect on their performance through practices such as self-assessment, peer review, performance checklists and portfolio assessments and should also be encouraged to support one another and work in groups. A class electronic bulletin board could support peer discussion and teamwork whilst computer-based tutorials and self-tests could help students to monitor their progress. Other areas that need to be focused on include encouraging informal study groups and team projects to provide opportunities for students to interact more closely (Bana and Hassoun, 1997). They also focus on ensuring students have access to things like e-mail discussion groups or formal or informal gatherings. Margolis, Fisher and Miller (1999) echo this opinion by stating that there is a need for peer-to-peer support. They found that many students are unaware that other students are struggling and thus attribute their difficulties to their own individual inadequacies rather than a larger scale, institution wide problem.

5.2.5 Institution-wide strategies

Bana and Hassoun (1997) also recommend that educational institutions focus on recruiting, hiring and retaining black faculty, as well as seeking black visiting faculty. It is also important that there are staff designated to provide additional help to students. These individuals must be approachable, knowledgeable and willing to help. Lastly, there needs to be an effective feedback mechanism that allows students to report on their experiences in the department (Bana and Hassoun, 1997). Cunningham (1994) supports this viewpoint and adds that educational institutions must also ensure easy access to hardware. In computer laboratories that work on a first come first serve basis, the senior, more computer literate, students are likely to shoulder aside the first year students. As a result, there needs to be a strategy in place to combat this. One method is to use sign-up sheets to allocate computers and resources equally and to enforce time limits to each work session.

Frenkel (1990) also addresses the issue of computer access. She suggests that tertiary institutions bury the costs of computers in tuition so that they fall within the expenses covered by student loans. This will allow computers to be set up in the residences and would give each student a sense of control and with this will come increased self-confidence. Computers in the residences would also promote peer-help and collaborative learning as discussed above. Possibly, as mentioned in 5.1.2 above, local industry and business that have been involved in the DACUM, might be persuaded to fund such projects.

6 Conclusion

It seems apparent that the technological environment of the majority of students entering historically disadvantaged technikons is inadequate. Technikon EUC courses need to be restructured to enable this technology gap to be bridged. These courses need to focus not only on the workings of computer hardware and applications software, but on how students can use the computer to gather, manipulate and communicate data and knowledge. The most desired outcome of such courses is for students to learn the underlying computer concepts and principles so that they are able to use computers to solve problems from a variety of disciplines. They should also develop the ability and the self-confidence to use new computer applications to solve new problems on their own. They should increase their expectations of what computer technology can help them achieve. Students who have to overcome internal and external barriers to self-efficacy because of a poor technological environment are especially in need of positive learning experiences that integrate learning computer skills with the real-life conditions of their existence.

7 References

Bana, S. & Hassoun, S. (1997). *Improving the graduate school environment for women in computer science.* Presented at the Grace Hopper Celebration of Women in Computing.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* New York: Freeman

Berryman, S.E. (1991). Designing effective learning environments: Cognitive Apprenticeship models. ERIC Document 337 689, 1-5.

Betz, N. & Hackett, G. (1997). Applications of self-efficacy theory to the career assessment of women. *Journal of Career Assessment 5(4)*: 383-402.

Coffin, L. (1993). *The DACUM Facilitator's Manual.* Glendinning Educational Resources, Charlottetown, PE. C1A7K4.

Coffin, L., & Morin, P. (1998). *Competency-based program development and implementation.* Canadian Vocational Association DACUM Training Program.

Cunningham, S.J. (1994). Guidelines for an introduction to networking: a review of the literature. *The Arachnet Electronic Journal on Virtual Culture, Vol. 2, Issue 3.*

Denton, W.T. (1973). *Program evaluation in vocational and technical education.* Information Series No. 98. Columbus, OH: ERIC Clearinghouse on Vocational and Technical Education.

Department of Employment, Education and Training (1993). *Describing occupations: Development of occupational descriptions for the Australian classifications of occupation.* Canberra: Australian Government Publishing Service.

Doane, S. M., Pellegrino, J.W. and Klatzky, R.L. (1990). Expertise in a computer operating system: Conceptualization and performance, *Human-Computer Interaction,* 5, 267-304.

Ellis, B.B. (1989). Differential item functioning: Implications for test translations. *Journal of Applied Psychology 74*(6): 912-921.

Finn,B. (1991). *Young peoples participation in post-compulsory education and training.* Canberra: report of the Australian Education Council Review Committee. Australian Government Publishing Service.

Frenkel, K.A. (1990). Women in computing. *Communications of the ACM, Vol. 33, No. 11,* 34-47.

Hager, P., Athanascou, J. & Gonczi, A. (1994). *Assessment: Technical Manual.* Canberra: Department of Employment, Education and Training (DEET), Australian Government Publishing Service.

Harris, J. (1982). Keeping Occupational Education Current, Formation and Evaluation – DACUM. *Proceedings of the American Technical Education Association Great Lakes Regional Conference, Toledo, Ohio.*

Hatton, M.J. (Ed.). (1998). *Lifelong learning: Policies, practices and programs.* [On-line]. Available at: http://www.apec-hurdit.org/lefelong-learning-book/main.htm

Howie, S.J. (Ed.). (1998). *Mathematics and Science performance in the middle school years in the Eastern Cape Province of South Africa. TIMMS South Africa.* Human Sciences Research Council, Pretoria, South Africa.

Kiesler, S., Lundmark, L., Zdaniuk, B., Kraut, R., Scherlis, W., and Mukhopadhyay, T. (1999). *Troubles with the Internet - The Dynamics of Help at Home, Technical Report,* HCI Inst, Carnegie Mellon University. [On-line]. Available at: http://homenet.hcii.cs.cmu.edu/progress/helpdesk.html

Jonassen, D.H. (1994). Thinking technology: Towards a constructivist design model. *Educational Technology, 34(3),* 34-37.

Juliff, P. (1990). Fundamental Issues in End-user Education. *Education and Computing 6*:17-22.

Landauer, T. K. (1995). *The trouble with computers,* Bradford Books.

Lederman, L.C. (1990). Assessing educational effectiveness: The focus group interview as a technique for data collection. *Communication Education (38),* 117-127.

Maor, D. & Taylor, P. (1995). Teacher Epistemology and scientific inquiry in computerised classroom environments. *Journal of research in Science Teaching. Vol. 32.* (8). 839-854.

Margolis, J. Fisher, A. &Miller, F. (1999). *The anatomy of interest: Women in undergraduate computer science.* Publication by the School of Computer Science, Carnegie Mellon university.

Nilsen, E., Jong, H., Olson, J., Biolsi, K., Rueter, H. & Mutter, M. (1993). The growth of software skills: a longitudinal look at learning and performance. *Proceedings of INTERCHI 93,* 149-156.

Norton, R. (1998). *The DACUM process.* [On-line]. Available at: http://www.interlynx.net/archway/ohio/DACUM.htm

Panko, R.R. (1988). *End-user Computing: Management, Applications and Technology.* New York: John Wiley and Sons.

Pearl, A., Pollack, M., Riskin, E., Thomas, B., Wolf, E., Wu, A. (1990). Becoming a computer scientist. *Communications of the ACM Vol. 33, No 11,* 47-58.

Salmi, J. (1999) Higher Education: Facing the Challenges of the 21st Century. *TechKnowLogia, January/February 2000*, 1-30.

Shulha, L.M. & Cousins, J.B. (1997). Evaluation use: Theory, research and practice since 1986. *Evaluation Practice (18)*, 3, 195-208.

South Africa's White Paper on Science and Technology (1997). Pretoria: The Department of Arts, Culture, Science and Technology

Spertus,E. (1991). Why are there so few female computer scientists? *MIT Artificial Intelligence Laboratory Technical Report 1315*. [On-line]. Available at: http://www.cpsr.org/cpsr/gender/spertus_womcs.txt

Stammen, R.M., & Vetter, R. (1994, December) Project title: Collaboratively created multimedia modules for teachers. US West Foundation Grant Application.

Stevenson, J. (1991). New Speak or Old Speak? Competency-based vocational education and training. *Summit 100: Training and education for the next century*. Sydney, 24-25 October, 1991.

Stevenson, J. (1990). Curriculum and teaching in TAFE. *The clever country: Australian education and training in perspective*. First national conference of the National Board of Employment Education and Training. Coffs Harbour, November, 1990.

Thomas, R.C. (1998) *Long term human-computer interaction - an exploratory perspective*. Springer-Verlag.

Thomas, R.C. (2000). A culture for computer literacy. *Proceedings of the CaTaC 2000 Conference*. Perth, Western Australia.

Van Averbeke, W. (1999). *Report on lecturing staff qualifications at Border Technikon*. Border Technikon, Potsdam, South Africa.

Van Dijk, J.A. (1997). *Widening information gaps and policies of prevention - 1*. Advice to the Information Society Forum of the European Commission. [On-line]. Available at: http://www.thechronicle.demon.co.uk/archive/infogap.htm

Weiss, C.H. (1972). *Evaluation Research: Methods of Assessing Program Effectiveness*. Englewood Cliffs, NJ: Prentice-Hall.

New Deal and the Colleges: Forcing New Wine into Old Bottles?

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(Summary of research by members of the London Region Post-16 Network Research and Development group on New Deal in Colleges: Viv Barker, College of Guidance Studies; Annette Hayton, Institute of Education; Mary Hill, Institute of Education; Sai Loo, North Westminster College; Norman Lucas, Institute of Education; Marcus Luck, Bexley College)

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Abstract

This paper is based on a summary of research undertaken by members of the London Region Post-16 Network who, over a period of nine months, conducted an investigation into how a central plank in the UK Government's social exclusion policy; namely the New Deal, was operating within the FE colleges.

The investigation revealed that there were considerable problems surrounding the management, pastoral support and curriculum delivery of the New Deal programme across the London Colleges. The central cause of these problems seemed to relate to a mismatch between the need for greater flexibility demanded by students coming via the New Deal routeway and the way that colleges are organised, including their curriculum delivery patterns and the provision of pastoral support care. There was no fully homogenous picture which emerged in the way the colleges investigated dealt with the challenges of New Deal. Some colleges had responded enthusiastically as part of their overall commitment to tackling social exclusion while for others it was a fringe activity only as their overall mission was perceived to be more in the HE area. In short, the level of political commitment to the New Deal concept varied widely across the colleges. For those colleges where commitment was low, much to much was left to the enthusiasm and hard work of the college new Deal co-ordinators. Levels of New Deal support funding appeared to be a common area of concern and in many cases this affected the flexibility and range of programme offer for New Deal students.

Method of investigation

The study and evaluation was carried out over a sixth month period from September 1999 to March 2000 by a small Research and Development Group of the London Region Post-16 Network. The Network is part of the Lifelong Learning Group at the Institute of Education, University of London and sets out to provide a forum where academics, policy makers and practitioners can discuss issues of concern, share best practice and consider strategies for the future. One of the Network's key aims is to ensure that the experience and expertise of various interested parties, including practitioners, is taken into account when a particular issue is under consideration. Since the Network was formed in 1989 some issues have been of such concern that ongoing Research and Development Groups have been formed to investigate and monitor developments. These Groups then disseminate their findings to the rest of the Network through events and publications and also ensure that member's concerns are relayed to the appropriate bodies.

The need for investigation and monitoring of the way that New Deal Colleges was being managed became apparent after a half-day Network event in 1999 revealed a series of implementation problems and a wide variety of strategies for addressing these. A group of practitioners and academics then met and decided to conduct a small scale research project into current practice with a view to feeding back the results to Network members through a further event and a publication. The group was self-selecting and the research was unfunded apart from general running cost such as postage and reprographics which were funded through the Network. After two or three meetings individuals were able to clarify their level of commitment and the membership of the group was closed.

Research methods used were a combination of questionnaires sent out to 60 colleges in London and the South East followed through with telephone reminders which resulted in 20 responses. From these several colleges were selected for in-depth interviews with college New Deal co-ordinators. These interviews were structured around key issues and concerns arising out of an analysis of the questionnaire returns. After considerable discussion we decided that we did not have the resources available to interview New Deal students but do feel that any future investigation should try to include their views.

The findings provided the basis for a half-day event in June 2000 where a version of this paper was presented; workshops were offered based on case studies from four colleges identified during the research; and questions were put to Tessa Jowell MP, Minister for Employment, Welfare to Work and Equal Opportunities A feedback paper was also prepared which outlined the main issues of concern identified during the event and this was sent to the Select Committee and Tessa Jowell's office. (See Appendix)

The Findings

For the purpose of this workshop I would like to list the concerns and successes and try to outline what might be an ideal New Deal Experience for those clients choosing the college education and training option.

1. Poor basic skills and attitudinal and motivational problems

It was found that non-completion/drop out rates were high with many 'New Dealers' severely lacking in both basic and attitudinal skills. One college located in an area with a high concentration of people from minority ethnic origins found severe ESOL difficulties in the clients referred to them and responded by setting up Saturday ESOL classes to take them up to an employable standard. In one or two colleges some tutors or heads of school had developed hostile attitudes to New Deal Clients owing to their failure to turn up for interviews, persistent lateness or absences. This finding coincides with a piece of research conducted by 'Youthaid' which noted that in the present buoyant economy many New Deal Clients are finding work during the Gateway period leaving the more challenging people for the College education and training option.(TES March 31st p31). This finding puts one in mind of

Professor Layard's comments at an open lecture at the Institute of Education(16.3.1999) about mopping up the existing 'stock' of those who had already been allowed to develop a welfare/benefits culture and the difficulties there would be in trying to break into this cycle of dependency. It seems that this issue of attitudinal and basic skills deficit is a real challenge for the colleges.

2. The tension between the longer term focus on employability and the short term focus on meeting job targets

Considerable frustration was experienced by New Deal Co-ordinators on Employment Service limits on both time to rectify basic deficit skills and on limits to progression onto higher grade programmes. One year was often too short a time to complete a vocational course say in media or drama studies or to acquire GCSE's or an A level leading possibly to an access course and eventually into Higher Education. This can lead in some cases to considerable frustration both by New Dealers and by teaching staff. It was noted in our investigations that there was a considerable amount of 'rule bending' by New Deal co-ordinators to get round these limitations to access in an attempt to build more flexibility into the system. Indeed we found some laudable flexibility and 'understandings' between local Employment Service personal advisers and College New Deal co-ordinators which had allowed special case individuals to be placed on level three, Access and HND programmes.

3. Mismatch between roll-on-roll-off New Deal delivery pattern and college organisational structures-new wine in old bottles.

It was found across the colleges that too much depended on the individual efforts and commitment of the New Deal Co-ordinators in attempting to fit an over conceived flexibility and individually tailored programme of 30 hours a week over a fifty week year into an over-rigid college framework operating over a shorter academic year combined with an inflexible curriculum delivery pattern. This was not true in all the colleges investigated nor was it true across all departments within a college. Indeed some departments in some colleges had made sound flexible provision for New Dealers whilst others resisted attempts to accommodate roll-on-roll off programmes of study. This finding is reinforced by Keith Sherlock, chief inspector of the Training Standards Council(TES March 31st), who reported that there was too much 'shoe-horning' of New Dealers into existing programmes. The issue of infilling New Deal Clients into existing course programmes on the basis of cost effectiveness also related to a finding that in some colleges New Deal students were barred from taking more materials-costly courses such as photography or art on the grounds that it would be too expensive for the college and that in any case the one year allowed would be too short a time to complete the study programme. Cost-effective infilling often resulted in students being placed on programmes for which they were unsuitable or uninterested and was one reason cited by course co-ordinators for non-completion or drop out.

4. High drop out rates

Measuring drop out rates was complicated by the fact that some New Deal students found work within the time span of the programme. Overall however drop out rates were high averaging around 55% but there were some noted successes(81% retention in one college) with some students being placed onto Level 3 programmes of study and in one or two cases onto HND Level 4 programmes of study. The two students placed on HND programmes left the New Deal scheme to continue their studies under Access or HE financial support.

Reasons cited by New Deal co-ordinators for drop out were:

☐ **Attitudinal:** Some students believed the college option would be a soft option but found that they often lacked the basic skills to sustain them through a course programme.

☐ **Programme content and Planning:** Some are placed on the wrong programme of study as a result of poor advice from personal advisers. Many found the course programmes irrelevant to their perceived needs or being too theoretical with too little work-placement or training provision.

☐ **Stigmatising:** Because New Dealers had to sign on and off at the end of each class and did not share the half-term and holiday breaks of FEFC students many felt labelled and discriminated against. This affected their often already low self esteem.

☐ **Staff attitude:** In a few cases, tutors themselves were hostile or unwelcoming to New Deal students being 'dropped' into the middle of an existing programme.

5. Guidance and support

Our findings here link into reasons for high drop out rates.

☐ Some co-ordinators expressed concern that young New Dealers had been referred to colleges without adequate advice and guidance. At one college a number had been placed on unsuitable courses and the total drop-out rate was 42%. One college's response had been to seek closer liaison with the Employment Service through setting up a 'consortium' of gateway provision for providing initial advice, guidance and referral(or not) and in this way developing a closer partnership between the college and the Employment Service.

☐ Some colleges saw the Employment Service's personal advisers as not being able to provide adequately the necessary time, attention and expert guidance needed. They were not seen by co-ordinators to be sufficiently expert in the range of tasks which they were expected to perform; as counsellors, careers guidance providers, welfare advisers etc. and indeed some of these roles could conflict with the employment targets set for them by the government.(one college New Deal co-ordinator reported an initial reluctance by Employment Services personal advisors to offer the full-time Education and Training Option as they were concerned that this route would not count towards their job targets). The New Deal co-ordinators identified a need for more national training and benchmarking of standards for personal advisers.

6. Colleges organisational and financial problems

It was not surprising to find that colleges MIS structures were geared towards FEFC students and not designed for New Deal roll-on-roll-off programmes. As mentioned earlier, because colleges were losing financially from taking on New Deal Students (£350 administrative costs in one college compared with £150 for an FEFC funded student) some colleges responded by limiting course option choices to areas which needed least resourcing. So that students wishing to take up photography for example would find this option closed because of financial constraints by the college. Colleges themselves responded differently to taking on New Deal. Those colleges in more affluent area with aspirations of taking on HE work were unsurprisingly unenthusiastic or poorly prepared for New Deal Clients who themselves were few in number. Colleges situated in high unemployment areas were found to have responded more positively and constructively in meeting the needs of New Deal clients and it is to these colleges that we might wish to turn if we wish to distill what might be best practice in delivering the college option more successfully.

7. Staff training and induction.

Our research found considerable variation between colleges on in-service preparation and training for staff many of whom would be involved in catering for New Deal students. For those colleges with little or no in-service training much of the burden fell on the New Deal co-ordinators and there was considerable cynicism from staff as to whether the programme would work. There was considerable complaint also about the amount of clerical red-tape which New Deal co-ordinators had to cope with to satisfy Employment Service regulations.

Best practice distilled

Our research was conducted in a positive spirit and in the belief that New Deal can change lives. A successful structure for the delivery of the New Deal College option might look something like this:

1. **A close partnership between the personal advisers and New Deal co-ordinators.** In some colleges this was achieved by placing Gateway provision, in consultation with personal advisers, within the college. Some colleges had set up basic skills assessment, induction, tasters and key skills provision either within the college or in a local colleges/Employment Services consortium arrangement set in an easily accessible(by the general public) central location. This college/ Employment Services partnership helped to break down concepts in the minds of New Dealers that the PA is part of 'the establishment'.

2. **High quality guidance and support systems.** One college had liased and contracted with the Employment Services to buy in 'private' specialist help for careers guidance in the belief that more specialist diagnosis of vocational training and career needs were of prime importance in preventing or minimising drop out rates. This need for specialist help highlights the complexity and range of tasks performed by PA's and the need for some quality benchmarking in their training. Some colleges investigated had established close links with support agencies dealing with drugs and alcohol abuse.

3. **Simplified administrative procedures and funding to support individualised programmes tailored to specific need.** There were many complaints by New Deal co-ordinators of the amount of time-consuming administrative red tape. Also financially strapped colleges needed to be supported more in their efforts to deliver individually tailored programmes based on client need rather than on efficiency and cost-effectiveness. This in turn relates to:

4. **More modularity, flexibility in progression and access and more time to complete programmes of study.** With these last two points a question arises as to whether the New Deal is over-employment focused? Should New Dealers have access to academic courses as well as vocational ones and is New Deal too employment focused on achieving short term job targets rather than aiming for long term sustained employment that longer training or education programmes might provide?

5. **Flexibility combined with structure.** To overcome the problems associated with infilling where often New Dealers feel scattered and unsupported a **tighter support structure needs to be set in place.** One college has set up a New Deal base in one of its Learning Resource Centres where New Dealers can meet and discuss issues with a New Deal support staff of three and where they can access job search and get further help with key skills on a 'drop in at any time' approach and where each New Dealer has an individually tailored action plan worked out for him/her. Retention rates for New Dealers at this college are already at 81% and rising. It may be noted that this college attempts to place New Deal clients at the start of each unit on a particular programme and that it provides subsidised hot meals for around £1.50p.

6. **Kindly, supportive and welcoming staff** who have received induction and training around New Deal issues. These staff a have a commitment to the values behind inclusive learning and underpin the

development of successful New Deal structures, guidance sitemaps and curricula. We would also suggest that the commitment and professionalism of New Deal staff should be recognised and valued.

Conclusion

The successes of New Deal students are beginning to show in those colleges which have a political and organisational commitment to it. Despite problems with drop out and rigid college organisational structures, individual stories of success were reported by all co-ordinators of how some clients had reported gaining in confidence and making new friends as new skills were realised In the words of one co-ordinator. 'Yes there are some people who are unemployable, however there are a good many individual success stories, the idea of New Deal is sound. It can and does change lives.!'

K G Marsh. June 2000
On behalf of New Deal Research and Development Group of the London Region Post-16 Network

References:

Layard R (1999) Tackling Inequality. Macmillan Press.

Faichnie C. (1999) Rhetoric and Reality. Young People and the New Deal.
Greater Manchester Low Pay Unit.

Slater J. 'Hardest Nut Yet to be Cracked'. TES/Briefing 31.3.2000.

International Employees Plead for Education and Assistance in Adjusting to Living in Foreign Cultures

This report makes obvious the need for intercultural communication competence for three types of international employees, and the common thread that links them. It summarizes three sequential studies by the author of international employees and their adjustment to living in unfamiliar cultures. The informants of the studies were (1) United States' expatriates living in Europe, (2) repatriates to the United States from Europe, and (3) impatriates to the United States from Africa, Asia, and Latin America. In each study, an ethnographic interview technique was used to collect data for hermeneutic phenomenological analyses. Results indicate that whether employees are leaving their home country, returning, or entering a host country, they experience loneliness, loss, and desperation for assistance in making the cultural adjustment. They report that their emotional status diminishes their performance, and they offer suggestions to enhance the competence of international sojourners and those who work with them.

Education in terms of intercultural communication competence has not kept pace with the need as generated by globalization. Whether employees travel internationally or communicate across cultures without leaving home, intercultural communication competence is critical to ensure communication that is not distorted by misperception, misinterpretation , or misevaluation. Employees lacking this competence often fail to adjust to other cultures, experience psychological and physical distress, create misunderstandings, and alienate members of other cultures, costing their companies untold sums of money, and loss of goodwill and future opportunities. Expatriate, repatriate, and impatriate informants desire assistance in adjusting to foreign cultures and to being understood.

Problem Statement

A small, but growing, body of literature addresses the failure rates of expatriate, repatriate, and impatriate employees and relates failure to the difficulties and stress of adjusting to a foreign culture. The implications of these failures for the sponsoring organizations are serious and result in unnecessary cost, both obvious and hidden.

Purpose Statement

Reports of research of expatriation and repatriation are scarce, particularly, from an interpretive perspective; reports of research of impatriation are even scarcer. The purpose of these studies was to arrive at an understanding of the lived experience for each group and to learn their personal perspectives of their needs for culturally adjusting and actions that could be taken to enhance cultural adjustment. With this information, human resource development professionals can develop educational programs that will serve to enhance cultural adjustment, increase success rates, and increase retention of employees with international experience and skills, all of which are beneficial to the employing organizations.

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Research Question

Using an ethnographic perspective as described in *The Ethnographic Interview* by James Spradley (1979), only one primary question was asked of the informants in individual, face-to-face interviews, and only one term in the question varied per study: That was the identifying term of the group; hence, the primary question was, "What is it like to be (1) an expatriate, (2) a repatriate, or (3) an impatriate to the United States?" Secondary questions evolved through the ensuing dialogue.

Literature Review

The literature reveals that organizations are not fully appreciative of the psychological impact of working and living in a culture other than one's own (McFarland, 1995, 1996) or of the cultural adaptation required to return to one's own culture after having lived in a foreign culture. The psychological impact is evidenced by the astoundingly high failure rate of expatriates (Copeland, 1985, 1990; McFarland, 1995) and low retention rate of repatriates (McFarland, 1997). However, perusal of the literature suggests that high failure rates should not be a surprise if the lack of cultural preparation and organizational support are considered (McFarland, 1995).

If pre-departure cultural preparation is provided in the form of intercultural communication training, it often is inadequate and insufficient. Brislin (1981) believes that intercultural communication training should attempt to improve cognitive, affective, and behavioral performance. However, what organizations offer under the guise of intercultural communication training may provide little more than the do's and don'ts of the target culture. Rarely, does it deliver underlying theories that allow the principles of intercultural communication to be applied to the variety of personalities and behaviors that are in any culture and to be transferred to other cultures. Cultural preparation and adjustment are issues of human resource development, business outcomes, and ethical consideration.

Human Resource Development Perspective. Adaptation to a culture becomes synonymous with successful communication within that culture (Gudykunst & Kim, 1992) because culture *is* communication (Hall, 1981). With this in mind, some people may say that if one knows the language, ones knows the culture, but knowing the culture is more than being able to speak the language fluently. Jawaharlal Nehru emphasized that communication is not in the narrow sense of the word, but is language of the mind, that it is not the appeal to logic and reason, but is an emotional awareness of other people (cited in Adler, 1991). This is demonstrated by the culture shock repatriates experience although they are returning home to their native language.

Expatriates and impatriates, on the other hand, expect cultural differences, but still they are often overwhelmed by their host cultures. They describe the experience as being like a three-year-old child again, unable to communicate effectively and unaware of the technicalities of setting up a household in the host culture and becoming socially independent and viable (McFarland, 1996, 1998).

Repatriates find that the culture of their organizations and the social systems they left behind have changed or are not the same as remembered. They return to a *foreign* culture where they feel misunderstood and do not experience emotional awareness from other people in terms of the experiences and the changes they have undergone. The effect of finding that their home culture is now a foreign culture can produce culture shock far more severe than the culture shock of living abroad where differences and lack of understanding of the culture were expected.

Even worse, repatriates who have been recalled due to poor performance suffer the double jeopardy of culture shock and the stigma of failure. These people, who generally fail due to cultural incompatibility, return to their organizations labeled as failures and suffer professionally as they lose prestige in the eyes of their superiors. They frequently take positions for which they are over qualified due to their decreased self-confidence and low self-esteem (McFarland, 1997).

Business Perspective. Failed expatriates cost U.S. corporations over $2 billion per year in terms of funds spent on the recalled employees and funds spent to replace them. Nearly half of those who do not adjust well to the culture, but complete their assignments report that they function below their normal level of productivity (Copeland, 1985). In addition, both recalls and low productivity are responsible for inestimable costs in terms of missed business opportunities.

Successful repatriates often find that their international experience and expertise are undervalued and underutilized. They are frustrated that their organizations shoehorn them into domestic-related positions just to provide them a job. As a result, almost one-quarter of repatriated employees leave their companies within one year of coming home (McFarland, 1995). They take with them valuable knowledge as they leave to work for competitors. If one in four repatriates leaves the firm each year, there can be no long-term return on the investment and there will be significant cost incurred to replace these employees.

Due to lack of cultural sensitivity and awareness, employers do not realize that repatriate employees are not the same people as when they left; that repatriates have experienced self-growth and have acquired international expertise and professional skills; and that they are experiencing culture shock. Repatriates need psychological and technical support, and they and their employers need intercultural communication training. A 1991 Dartmouth College study estimates, however, that 90% of U.S. companies offer less than three hours of training for the return home (Engen, 1995). Given that American multinational corporations spend approximately $1,000,000 on each expatriate over the duration of a three-to-four year foreign assignment (cited in Black, 1992), the cost of a training program to aid repatriates in adjusting to their home culture and reintegrating into the organization is minimal. Culture shock is costly whether looking at expatriates, repatriates, or impatriates. Global organizations should remember that "Culture is not peripheral to business—it's central to business. It permeates every aspect of business" (Guptara, 1990, p. 13).

Ethical Perspective. The question of ethics arises for organizations that relocate people with no or inadequate cultural preparedness training for the purpose of working in an unfamiliar culture. The ethical question is especially poignant considering the growing body of research indicating that intercultural communication training significantly improves psychological well being, communication, and productivity. Numerous research reports have been compared and evaluated in two major studies (Black & Mendenhall, 1990; Deshpande & Viswesvaran, 1992). Deshpande and Viswesvaran concluding a meta-analysis of 21 research studies that included 1,611 subjects state that intercultural communication training clearly is effective for all five criteria they surveyed: self-development, perception, relationship, adaptation, and performance. The trend is clear:

Intercultural communication training improves and accelerates cultural adaptation. To send employees to live and work in a foreign environment without cultural preparation is to set them up for failure. If expatriates fail, they are blamed rather than the organization that did not prepare them. This scenario is neither lucrative nor ethical.

Theoretical Framework

By definition, expatriation means a sojourn in a culture other than one's own; repatriates are people who return to their home country after a sojourn in a foreign country; and impatriates are people from a foreign country who come into one's culture to reside and work. Each culture represents a different system in which the individual must learn to communicate; therefore, the theoretical framework for these studies is built of Hofstede's cultural dimensions (1984, 1991), communication theory, and systems theory (McLagan, 1989).

Hofstede's Cultural Dimensions. Hofstede's (1984) cultural dimensions assist in characterizing, predicting, identifying, and interpreting general behavior within and among cultures. His four cultural dimensions follow:

Individualism versus Collectivism. This dimension pertains to the ties that bind people together. Individualists are loosely bound to each other; collectivists, on the opposing pole, are integrated into cohesive in-groups, which protect them in exchange for loyalty.

Power Distance. Power distance refers to the degree of inequality that is expected and accepted among members of a culture.

Uncertainty Avoidance. Uncertainty avoidance is the extent to which a culture will go to avoid uncertainty and, thus, anxiety.

Masculinity versus Femininity. This dimension refers to qualities that are associated with the male and the female genders and represent the predominant values of life; for example, achievement and acquisitions (masculinity) or nurturing and relationships (femininity).

Knowledge of these dimensions provides a baseline for individuals to predict and understand culture-based behavior, so the observed behaviors are not perceived as personal affronts.

Communication Theory. A basic communication model indicates that the message sent is never the same as the message received, because the messages received by listeners/observers are decoded and filtered through their personal perspectives, which are determined by their experiences: All interpretations are made through the lens of one's experiences. When the lenses are different, as between members of different cultures, interpretations are different; however, when awareness and sensitivity are heightened, the lenses of the message sender and the message recipient are more nearly aligned, and communication competence is heightened.

General Systems Theory. Cultural preparedness training is based on systems theory assumptions and focuses on the intercultural communication processes that take place when individuals from one culture interact with those of another culture (Gudykunst & Kim, 1992).

Procedures and Methods

Each of the three studies reported herein represents a phenomenological hermeneutic method that attempts to describe and to understand (hermeneutics) a particular phenomenon (phenomenology), in this case, expatriation, repatriation, and impatriation.

Informants. Names of United States expatriates and repatriates were acquired from top-level international human resource development professionals. They were connected directly as employees or indirectly as employees' spouses to multinational organizations. All impatriate informants were associated with a large Roman Catholic Archdiocese in the Midwest United States. Ages of informants ranged from the early thirties to the early fifties. Expatriates and impatriates had been in their current assignments at least one year, and repatriates had been home at least one year. Although it was unknown until the interviews were completed, none had had intercultural communication training.

Data Collection. As recommended by Spradley (1979), Dobbert (1989), and van Manen (1990), unstructured, audiotaped, face-to-face interviews were used to gather data and to provide detailed, expanded accounts in verbatim records. In addition, notes were taken throughout the interviews by the interviewer.

Data Analysis. The following strategies for discovering themes by using linguistic symbols have been suggested by Spradley, Tesch, Dobbert, and van Manen (1979, 1987, 1989, 1990, respectively) (sometimes using different terms for the same processes) and were used for thematic analysis in this study: transcription, highlighting, summarization, tree diagramming, domain analysis, taxonomic analysis, and componential analysis.

Findings and Conclusions

Interestingly, the data from the three studies yielded similar themes that depicted similar personal needs and recommendations for action. The common denominator among the three groups is the challenge (sometimes despair) of cultural adjustment (even when returning home) and their plea for both physical and psychological support. Following are some of the quotations that suggest their feelings, observations, and concerns:

United States Expatriates in Belgium, France, and the Netherlands.

- You can see just by walking through the neighborhood--everybody has a huge fence around their house. They close it off as much as they can, and as soon as it gets dark, those big heavy blinds go down. Very, very private people.--*Belgium*
- There is no interaction between the communities.—*Belgium*
- Nobody here makes a mistake. It's always the other guy.--*France*
- The Dutch are more like Americans, more open and friendly.—*Netherlands*
- I expected within the first week I was here to have someone ring the doorbell and introduce themselves to me. A year went by and I still haven't met the people next door.—*Belgium*

United States Repatriates from Africa, Japan, and Western Europe.

- Culturally the company has changed. There's a lot of anxiety about security and wellness of the business that wasn't there when we left.--*Employee*
- Companies are losing [repatriate] employees because they are not making the effort to help them adjust.—*Spouse*
- The relationships you had with friends before you left are pretty much gone.–*Spouse*
- I don't know why companies think they can send someone someplace for five years, give them that degree of responsibility and excitement in their life, give them that broad experience, and then expect to bring them back to corporate headquarters and throw them in a cubicle.--*Spouse*

- For preparation to go abroad, we were handed a notebook and told, "Have fun."--*Spouse*
- Corporate headquarters doesn't have a clue what real life is all about.--*Spouse*
- When you come back, you're overhead. Human Resources just wants to get rid of the overhead. They aren't there for you!—*Employee*
- Anybody who goes over on a foreign assignment and thinks somebody in the company is going to keep track of you, that's the biggest farce there is.--*Employee*

Impatriates to the United States.

- I was frightened about coming to America.--*Nigeriaa*
- I feel very uncomfortable. I don't feel at home.--*Mexico*
- In Africa, I would be more interested in you, in making you feel at home, talking with you.—*Uganda*
- Everybody here seems to be kind of isolated, individual. He is responsible for himself and he has no community to fall back on.—*India*
- It's difficult coming from a society where the family matters so much to a society where the individual matters most.—*Uganda*

If the informants had had intercultural communication training that included a theoretical foundation for application and transfer of learning, they would have been able to predict and understand many of the behaviors they witnessed in their organizations and social interactions. If members of the organizations had had intercultural communication training, they could have been emotionally aware of and sensitive to the needs of their expatriates, repatriates, and impatriates.

Following are some of the suggestions from the three groups for aiding international employees and their companions with cultural adjustment, whether they are abroad or returning to their home culture:

- Use discerning measures for selection of international employees and their companions.
- Educate native and foreign employees in intercultural communication competence.
- Provide opportunity for language lessons.
- Provide a technical assistant to help with the details of starting life in a different culture.
- Provide all information and equipment pertinent to the role/work of the employee.
- Create open, frequent communication with the home organization to dispel feelings of abandonment and to ensure a favorable position upon returning.
- Create opportunities for positive social interactions in order to communicate and become better acquainted with host country members and with other people in the same situation.
- Mostly, listen to them.

Implications and Recommendations

Although these studies focused on United States expatriates and repatriates, plus impatriates to the United States from foreign cultures, many cases involving other nationalities and circumstances are cited in the literature. For example, conflicts experienced by the Chinese with their joint –venture partners in China (Beamer, 1998); conflict among Omani host-national, entry-level employees with Indian managers and Indian entry-level employees (Kuehn & Al-Busaidi, 2000); and the negative shift in emotional well-being of Japanese expatriates in Great Britain (Nicholson & Imaizumi, 1993). Tung (1987, in Martinko & Douglas, 1999) estimates the Japanese expatriate failure rate at 5% and the European expatriate failure rate at 10% (Price Waterhouse, 1997, in Selmer, 1999). When tested for interaction adjustment and work adjustment, international managers of the US and Great Britain scored significantly better than French and Swedish managers in both areas; however, Swedish managers scored higher on psychological adjustment than managers of the US, Great Britain, and France (Selmer, 1999). Other studies indicate differences in communication style, values, personnel policies, and legal systems have contributed to corporate culture shock for Swedish, German, and Norwegian managers assigned to US subsidiaries (Selmer, 1999). However, the literature seems to unanimously agree that United States multinational corporations have the highest expatriate failure rate among all nations studied in this context.

The studies conducted by this author suggest that the multinational organizations represented do not view cultural sensitivity as critically important to working in the global arena and do not recognize their role in preventing failure of their employees. The themes that emerged from the data analyses imply several avenues for future research in the areas of selection; communication between employees and their employers; designing and developing intercultural communication competence-building programs for expatriates, repatriates, impatriates, and other employees of the organizations; and cultural preparedness.

The international employees offered suggestions for cross-cultural skills education programs for themselves and their hosts that include elements of technical and psychological support. Considering the comparable findings when studying such diverse populations of international employees, might one consider the trauma of cultural adjustment to be the *universal* issue of international employees?

References

Adler, N. J. (1991). *International dimensions of organizational behavior.* Boston: PWS-Kent.

Beamer, L. (1998). Bridging business cultures. *The China Business Review*, 25(3), 54-58.

Black, J. S. (1992). Coming home: The relationship of expatriate expectations with repatriation adjustment and job performance. *Human Relations 45*(2), 177-192.

Black, J. S., & Mendenhall, M. (1990). Cross-cultural training effectiveness: A review and a theoretical framework for future research. *Academy of Management Review, 15*(1), 113-136.

Brislin, R. W. (1981). *Cross-cultural encounters: Face-to-face interaction.* Boston: Allyn and Bacon.

Copeland, L. (1985). Cross-cultural training: The competitive edge. *Training, 22*(7), 49-51.

Copeland, L. (1990). International training. In R. L. Craig (Ed.), *Training and development handbook* (717-25). New York: McGraw-Hill.

Deshpande, S. P., & Viswesvaran, C. (1992). Is cross-cultural training of expatriate managers effective: A meta-analysis. *International Journal of Intercultural Relations, 16,* 295-310.

Dobbert, M. (1989). *Ethnographic research: Theory and application for modern schools and society.* New York: Praeger Publishers.

Engen, J. R. (1995, March). Coming home. *Training.*

Gudykunst, W. B., & Kim, Y. Y. (1992). *Communicating with strangers (2nd ed.).* New York: McGraw-Hill.

Guptara, P. (1990, November). The art of training abroad. *Training & Development Journal*, 13-17.

Hall, E. T. (1981). *Beyond culture.* New York: Anchor Books/Doubleday.

Hofstede, G. (1984). *Culture's consequences: International differences in work-related values* (2nd ed.). Newbury Park, CA: Sage.

Hofstede, G. (1991). *Cultures and organizations: Software of the mind.* New York: McGraw-Hill.

Kuehn, K. & Al-Busaidi, Y. (2000). A difference of perspective: An exploratory study of Omani and expatriate values and attitudes. *International Journal Conflict Management*, 10(1), 74-90.

Martinko, M. & Douglas, S. (1999). Culture and expatriate failure: An attributional explication. *The International Journal of Organizational Analysis*, 7(3), 265-293.

Marx, E. (1999). *Breaking through culture shock*. London: Nicholas Brealey Publishing.

McFarland, J. R. (1995). The status of intercultural communication training in Fortune 500 manufacturing and service organizations. *Academy of Human Resource Development 1995 Conference Proceedings*. Austin, TX: AHRD.

McFarland, J. R. (1996). Perspectives of United States expatriates in the Netherlands, Belgium, and France on expatriation and the role of their sponsoring organization. *Academy of Human Resource Development 1996 Conference Proceedings*. Austin, TX: AHRD.

McFarland, J. R. (1997). An interpretive study of the perspectives of United States repatriates on repatriation and the role of their employers *Academy of Human Resource Development 1997 Conference Proceedings*. Austin, TX: AHRD.

McFarland, J. R. (1998). Impatriation via a not-for-profit organization: An interpretive study of the cultural adjustment of international catholic priests and sisters to living in the upper Midwest United States and the role of the organization. *Academy of Human Resource Development 1999 Conference Proceedings*. Chicago, IL: AHRD.

McLagan, P. (1989). Systems model 2000: Matching systems theory to future HRD issues. In D. Gradous (Ed.) *Systems theory applied to human resource development*, 61-82.

Nicholson, N. & Imaizumi, A. (1993). The adjustment of Japanese expatriates to living and working in Britain. British Journal of Management, 4(2), 119-135.

Price-Waterhouse, (1997). International assignments: European policy and practice, 1997/1998, Europe.

Selmer, J. (1999). Adjustment to Hong Kong: US v. European expatrites. *Human Resource Management Journal*, 9(3), 83-93.

Spradley, J. P. (1979). *The ethnographic interview*. New York: Harcourt, Brace, Jovanovich.

Tesch, R. (1987). Emerging themes: The researcher's experience. *Phenomenology & Pedagogy, 5*(3), 230-241.

Tung, R. (1987). Expatriate assignments: Enhancing success and minimizing failure. *Academy of Management Executive*, 2, 117-126.

van Manen, M. (1990). *Researching lived experience*. New York: State University of New York Press.

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SPECIAL FEATURES OF THE FINNISH LABOUR MARKET AND CHALLENGES FOR EDUCATION

Background

In our paper we examine some special features of the Finnish labour market and challenges which they set to higher- and adult education. Our presentation is based on three research projects[1]:

1) In *The hidden labour market of the academic*, the main purpose is to get an understanding of the so-called hidden labour market and to determine the knowledge and skills that the academic needs in order to get a job in the labour market. The data is collected by the delphi method from experts in two rounds: questionnaire and virtual discussion forum via the Internet.
2) In *Tacit skills and adult education*, one of the main purposes is to discover the experiences and views of teachers and middle management in trade about the changes of their work, the role of adult education in their work, and the position and value of ageing workers. In the study we compare the views of younger and older workers. Research methods are interview and inquiry.

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[1] In our paper, the empirical findings that are based on these research projects are in italics.

3) In *Towards a successful old age: from a full working career to an active retirement*, one of the purposes is to examine the role and significance of adult education in maintaining the working capacity of people of working age. In the first stage of the study, statistics from adult education and other forms of documentation will be used to establish and describe the participation of ageing workers in education or training and examine the position of ageing workers.

Ageing workers and lack of education

The "greying" of the population is an issue which has been the focus of increasing attention within the European Union, where the population in some member states is ageing at a rate faster than anywhere else in the world (European Foundation 1996, 1, 6). In Finland, the population is even more aged then in the older EU member states. About a quarter of the Finnish workforce is represented by people aged 50-64. According to the calculations of the Finnish Ministry of Labour (1996), in 2030 the Finnish population of working age (15 to 64 years) is expected to be smaller by some 430 000 persons than in 2010. As early as during the next 10-15 years the number of aged 65 and over will increase by 75% from its present level. (Eva 1998, 13.) (See appendix 1.)

Even though the labour market participation of 50 –59 year olds is more common in Finland than in other EU countries (partly because of the active participation of women), the transition of older workers (aged over 60) to retirement is happening, on average, faster in Finland than in other EU countries.[2] During the last couple of decades, the shift in labour market participation has been enormous; while in 1970 the employment rate in Finland of older men (55 – 64 years) was more than 70 percent, by 1990 it had fallen below 45%. (KM 1996, 3, 14; Järnefelt 1998, 47; OECD 1995, 16-17.) More than half of the Finns aged 55 to 64 are already retired and the average retirement age has dropped to around 58 years, even though the statutory age at which individuals qualify for the old-age pension is 65.

The present disadvantageous developments in demographic structure and the eagerness of employees to take early retirement have stimulated the debate over ways of maintaining working capacity. "Working capacity" consists of a large number of individual factors, of which Matikainen (1995, 49) emphasises the following: pension legislation, health, the working environment, the work-place community, the social environment and the employer's personnel management policy.

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[2] The employment rate of older workers is decreasing as fast as in Finland only in the Netherlands and France.

What is surprising is that occupational knowledge and skills are often ignored in such lists, although it can be assumed that whether the individual's occupational skills are up-to-date or not will affect his/her ability and willingness to continue working.

The ageing population is not as well educated as the younger generation. In Finland, the differences in the level of education between younger and older workers is one of the biggest when compared with other OECD countries (KM 1996). This problem becomes more acute the closer we approach the older generations: of those aged 50-54, some 44% have only the most basic educational background, and for those aged 60-64 the figure is as high as 67% (Järnefelt 1998, 59). When we look at the younger generations (aged 20-30), we notice that 18% have only the most basic education and nearly a quarter of the age group have tertiary education (Statistics Finland 1998, 461). (See appendix 2).

A good level of basic education and participation in adult education has been shown to reduce the risk of being displaced from working life (Ministry of Labour et al. 1999, 33.) In almost all age groups, the likelihood of continuing in work is directly related to the individual's level of education. The differences are considerable: for instance, amongst the 55-59 year olds, some 80% of those with a post-secondary education were still working, compared to only 41% of those with an elementary-school education (Järnefelt 1998, 60.)[3]

Education and training are seen as the key issues in the successful integration of the ageing population into working life (Ministry of Labour 1998, 141-142). The popularity of adult education, however, does not seem to offer a solution to the educational problems of the ageing population. What actually happens is that those who participate in adult education are the same individuals who already have a relatively high educational level (see for instance Rinne et al. 1992; Statistics Finland 1997). (See appendix 3.)

The majority of teachers and middle managers who take part in "Tacit knowledge and adult education" research think that it is necessary and worthy of investment to direct attention to ageing workers' working capacity and willingness to work. Constant change, increased working pace and requirements for effectiveness in particular are consider to be things which burden the ageing worker.

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[3] The finding is not in itself surprising; men and women with only elementary education tend to work in poorly paid and physically stressful jobs, and their work motivation is not necessarily particularly high. A higher education, on the other hand, seems to be linked with working conditions, jobs and personal characteristics which help the individual to remain in working life for a longer time. (Aho and Österman 1999, 75.)

Particularly the development of information technology is found to be a great challenge for older workers, and we have to offer enough possibilities for its learning. Teachers and middle managers emphasise that we can no longer afford to throw away people's experiential knowledge and skills.

Keeping ageing workers capable and motivated has become one area of focus in social policy, because it effectively retards the rise in the support ratio (i.e. the ratio between the population as a whole and those actually working). During 2020-2030, the support ratio in Finland will be the worst of all OECD nations; after that it will gradually alleviate. (Eva 1998; see also Ministry of Labour 1999, 234.) In the 2020's, for each person actively employed there will be 1.37 non-working dependants in addition to him/herself. At its worst, the figure might rise in the 2030's to 1.7. (Eva 1998, 14-15.)

Emphasis on technology and internalisation

At the same time that the population is ageing, working life is rapidly changing, setting new demands to occupational skills. The occupational structure of Finland has changed dramatically during the last 25 years. Those who entered the workforce many decades ago with a fairly low level of education now find themselves competing for jobs in work environments that are quite different from those they first experienced. Many older workers entered very traditional organisations and have worked for several years in production-line jobs. Nowadays, coping with constant change, teamwork, life-long learning and information technology skills, which were unknown a generation ago, are priorities in work life (Avedon, 1995). The challenges for adult education are enormous in updating the occupational skills of ageing workers.

The experts who have taken part in "The Hidden labour Market of the Academic" project estimate that the following changes will happen in working life in the future.

1. *an increase in atypical employment and atypical working hours*
2. *a development of technology*
3. *globalisation/internalisation*
4. *an emphasis on education*
5. *a change of the age structure of the workers*

A development of technology and globalisation increase the demand for workers with a wide range of qualifications. Experts predict that, for example, languages, internationality, expertise, communication abilities, and the ability to use information technology are highly valued qualifications in modern work-life and will become even more valuable abilities in the future. In addition, the capacity to develop, the ability to deal with ambiguity and complexity and the willingness and ability to learn new things are emphasised. Because of these things, employers want to hire young people in particular. One of the experts said that distant work, mobility of workforce and flexibility are increasing, and information technology divides the younger and older generations strongly into different categories. About half of the experts are of the opinion that the labour market is segmented based on different factors such as age, sex and place of residence.

The experts also predict that in the future there will be a demand for workers who have special qualifications to work in an international context. These workers can speak several languages and have international work experience. To put it very strongly, it seems as if they are predicting the rise of a new elite.

The teachers and middle managers share the opinion that, during recent years, the amount of work has increased and, at the same time, the pace of work has increased. There has been a need for more flexibility and multi-sectoral and diversified know-how. Also the independence of work and co-operation with colleagues have increased.

Teachers see the expansion of information technology as a future change. Teachers are further afraid of the consequences of a tightening budget: this may mean enlargement of group/class sizes etc. Some teachers are worried that it is going to be difficult to get young people to enter their profession. It is not seen as very attractive today because of the poor salary and school problems. One teacher misses the good old times, a return to authority in school as well as in society. It should be possible to restore work peace to the schools and to maintain peace in society.

On the basis of the information that has been received from the interviews, some of the changes that will take place in the field of trade are changes and rearrangements that are connected with the arrival of the euro and the expansion of information technology. Furthermore, new forms of trade are going to expand and increase. Moreover, the pace of the staff will increase and people will have to be even more flexible. They must have the ability to adopt new matters quickly. There will be no time for long deliberation.

Both teachers and middle management of trade say that with technical changes (for example information technology) education is necessary, but things which are related to social relationships have to be learned in practice, at work. Knowledge is always an important issue in answering changes.

Younger teachers participated in seven days of adult education in 1997, which is two days more than their older counterparts. Most courses were connected to information technology. Immigrants and new cultures at school were also reasons for further education. Languages are the third largest area which interest teachers. In the field of trade, the main area of education is also information technology and younger workers are more active to take part.

The experts predicted that an emphasis on education would be an important trend in working life in the future. Education seems to work as a weapon against the uncertainty of working life. However, even the master's degree seems not to be enough. Interdisciplinary know-how is seen as very valuable. Experts emphasised the meaning of lifelong education and learning at work in particular. The future of the kind of education that includes practical elements will be more valuable in general.

In a rapidly changing working life, knowledge and skills will expire faster than before, which is why the employee must have readiness to learn new things. It is possible that in the future periods of work and education follow each other. In this way people can update their knowledge and skills to respond to the challenges of working life.

Unemployment and atypical employment

From traces of the recession of the early 1990's, the unemployment rate in Finland (11,0%) is still higher than the average of EU countries (9,0%) (Eurostat 2000; Statistics Finland 2000). The unemployment rate of academics in Finland in the agegroup of 25-29 is also higher (8,5%) than the average of OECD countries (7,7%) (OECD 2000, 271). One of the reasons for mass unemployment is that in the Finnish labour market the demand of new kinds of vocational skills exceeds the supply, and on the other hand the supply of traditional vocational skills exceeds the demand. We need great investments in education to reduce the difference between supply and demand. Adult education and lifelong learning in particular have a great role in this task (Ministry of Education 1998; Rachel 1990, 8; Ministry of Social Affairs and Health 1999, 35.)

The normal structure of the labour market began to crumble as early as the 1980's. In the 1990's, atypical employment rapidly became more common (Kivekäs 1997, 44.) The number of positions in typical employment has fallen from 80% to over 60% during 1988-1994 (Suikkanen & Linnakangas 1998, 14). It therefore seems that atypical employment is becoming "typical employment". The two most common forms of atypical employment in Finland are periodic and part-time work (Nätti 1997).

The experts estimate that the most important trend in working life is an increase in atypical employment and in atypical working hours. People in atypical employment must learn to cope with the insecurity that this change will bring.

The frequency of atypical employment amongst academics can be seeing in other research, such as Akava 1998 (18-20). In 1998 18% of members of Akava (Confederation of Unions for Academic Professionals in Finland) work in atypical employment and 75% work in typical employment. Atypical employment is more common amongst the younger generation than the older one, and especially amongst women. Over 50% of under 30 year-old women who are members of Akava and work full time are periodically employed. (Akava 1998, 18-20.) Atypical employment is common amongst graduates as well. 43% of the people who graduated in 1997 from the University of Turku were working periodically and 3% were working part-time in 1998 (Vänttinen 1999).

Ageing in particular is linked with a shift towards part-time work. In 1996, almost one third of those aged fifty and over were working part-time. In the case of those over 58, however, the prevalence of part-time work is explained by the right of those aged 58-64 to the part-time pension, which can be seen as a "flexible form of leaving the work force". In the case of those aged 50-57, on the other hand, part-time work would seem to be dictated by necessity; there is not enough work for a full-time job. (Järnefelt 1998, 53.)

With regard to permanent vs. non-permanent jobs, only 10% of those aged 50-64 were in non-permanent or short-term jobs, compared to those aged 20-24, where almost half of those working were in such jobs (Järnefelt 1998, 54.) This job security can be seen as one advantage enjoyed by the elderly; if, however, a worker aged 50 and over becomes unemployed, his or her unemployment is likely to be protracted. Of those unemployed for two years and more, more than 60% represent the ageing group (KM 1996,14, 61.)

Older workers strengths and weakness

Demand in the labour market is directed to the younger and usually more educated group, and the tendency towards overt age discrimination has recently become more overt (KM 1996, 3, 14; Imel 1996; Kater 1995, 62-63). Employers often stereotype the older worker as a person who has a lack of education, out-of-date skills and difficulties in coping with tasks where speed is needed. However, older workers are supposed to compensate for some of their lacking skills with their long and often rich working experience (Hendricks & Hendricks 1977, 217–221; Kaeter 1995, 62-63; Imel 1996.)

Teachers think that ageing makes it easier to do their work: older teachers have the courage to be what they are. Teachers think that pupils respect older teachers more, she/he has a stronger and more credible authority than his/her younger counterpart. Older teachers are realistic: they know what is important and essential in teaching. Younger ones do much more (preparation) work, but in the end the final result is the same. There are also negative things associated with ageing. Younger teachers in particular think that routines of their older counterparts might be a barrier for vocational development. Furthermore, it is often difficult to break older teachers' resistance to changes, not all teachers understand that they too should be lifelong learners.

According to the interviews, the middle managers consider older workers to be very patient. They are ready to do different tasks; they do not complain and have a high work ethic. Some middle managers value older workers very highly and were ready to hire older employees. One reason for hiring older workers is that older people may want to be served by someone of the same age, and this need is growing because our population is ageing.

Formal, and academic education in particular, seems to give some kind of security: ageing teachers do not have as much fear about their working relations as middle managers of the same age or as teachers under 45 years of age. One way to explain this is that most of the ageing teachers have permanent posts. However, according to the interviews, there is a fear of exhaustion amongst the ageing teachers. The increasing specialisation of schools is considered a threat too. In the future, there may be no ordinary schools left for ordinary teachers, who are usually the older ones.

In the trade sector, ageing workers are not as optimistic about the future as their younger counterparts. They have more fears about losing their jobs too. Middle managers have had to be a kind of good example/leader figurehead in the firm, and some of them feel too tired in a time of constant change to continually get more and more education in order to manage their jobs well. Therefore some of them would like to give their challenging positions voluntarily to younger colleagues before someone has to lead them into retirement by the hand.

Expansion of education

The expansion of higher education has been seen as a good phenomenon. The more highly educated the population is the higher the welfare of the society. On an individual level, higher education has been seen to bring with it a permanent job, a good career and a better chance to improve one's social status. Nowadays higher education is not as good an investment as previously. (Rinne & Salmi 1998, 44.)

In the EU (on average) the number of students in tertiary education has more than doubled over the last twenty years. Amongst EU and EFTA/EEA countries, the proportion of students studying in tertiary education as a percentage of all those in education is relatively high in Finland (19%), Greece, Spain (18%) and Norway (17%). The European average is 15%. The number of people holding a qualification from tertiary education is higher amongst the younger generation than in the older generation. Whereas 21% of EU citizens aged from 35 to 39 have a tertiary education qualification, the proportion for those aged 55-59 is only 14%. (European Commission 2000, 103-104, 118.)

An academic degree does not automatically guarantee a good job. Many graduates have to settle for in jobs where socio-economic status is lower than expected. Beside of this, graduates may notice that the job they enter does not give them an opportunity to use all of the skills they have acquired during their education (Rinne 1998, 17-18.) Graduates might be working in jobs which could be performed equally well by those with sub-degree qualifications (Alpin, Shackleton & Walsh 1998, 18). Over-education and under-utilistation are concepts that are commonly used to describe this phenomenon (Rinne 1998.) Over-education can compensate for lack of work experience and, on the other hand, work experience can compensate lack of formal qualifications (Alpin, Shackleton & Walsh 1998, 19, 32). According to a labour market study conducted by Akava (1998, 21-22) in 1998, 13% of members of Akava started their career in a job for which the required level of education was below their degree.

The experts estimate that the most important recruitment criteria in academic employment are personality and specific work experience. A university degree is considered an important recruitment criteria also, but not as important as personality and work experience. From that point of view, the younger generation might try to compensate for a lack of work experience by over-education.

Summary

A rapidly changing working life sets many different challenges for the workforce. In this paper these challenges are examined through the eyes of highly educated, academic workers and poorly educated older workers.

Ageing as a demographic trend has been the focus of increasing attention in the EU. In Finland the population is even more aged than in the older EU member states. In Finland the transition of older workers to retirement is also happening, on average, faster than in other EU countries. Demand in the Finnish labour market is directed to the younger, and usually more educated group, while the supply comes increasingly from the ageing group. In Finland, the differences in the level of education between younger and older workers is one of the biggest when compared to other OECD countries.

The present disadvantageous developments in demographic structure, and the eagerness of employees to take early retirement, have stimulated the debate over ways of maintaining working capacity. In maintaining the mental and social functioning of ageing workers, the role of education and training is considered as crucial. A considerable proportion of those aged 45 should be retrained or given supplementary training to avoid their early retirement. Good levels of basic education and participation in adult education have been shown to reduce the risk of being displaced from working life.

At the same time as the population is ageing, working life is rapidly changing, setting new demands on occupational skills. Those who entered the workforce many decades ago with a fairly low level of education now find themselves competing for jobs in work environments that are quite different from those they first experienced. The challenges for adult education are enormous in updating the occupational skills of ageing workers. New priorities for working life (e.g. coping with constant change, communication abilities, information technology skills and language skills) are more familiar to the younger generations. These skills are emphasised because of the development in technology

and of the increase of globalisation and internalisation. Life-long learning and learning at work becomes increasingly important because the changing working life presupposes constant updating of knowledge and skills. A high level of education alone does not guarantee sufficient occupational know-how.

The situation of the younger and more highly educated is not easy either. In the past, the academic could be certain that a degree guaranteed a reliable career, but nowadays this is not truePrimarily this is caused by academic unemployment and an increase of atypical employment. In addition, in many cases the work tasks which the academic enters in to do not correspond to their education either (over-education and underemployment). The length of studies causes another problem. Unpredictable changes in working life mean that in education we can not know what kind of knowledge and skills the academic will need when it is their time to enter into a career.

Two highly valued recruitment criteria among employers are work experience and personality. Since the academic lacks work experience in comparison to older workers, this raises a challenge to education and labour policy: how to utilise and fix together the work experience of the older workers and academic knowledge of the academic.

References

Akava. 1998. AKAVAn työmarkkinatutkimus 1998.

Alpin, C., Shackleton J. R. & Walsh, S. 1998. Over- and Undereducation in the UK Graduate Labour Market. Studies in Higher Education 23 (1), 17-34.

Avedon, L. 1995. Older workers in transition. Ottawa: Canadian Guidance and Counselling Foundation.

European Commission. 2000. Key data on education in Europe. Luxembourg : Office for Official Publications of the European Communities.

European Foundation 1996. Experience, skill and competitiveness: the implications of an ageing population for the workplace. Ireland.

Eurostat. 2000. http://www.eubusiness.com/employ/990204es.htm 24.1.2000

Eva 1998. Harmaantuvat hämäläiset. Raportti väestön ikääntymisestä ja yhteiskunnan muutoksesta.

Hendricks, J. & Hendricks, C.D. 1977. Aging in mass society. Myths and Realities. University of Kentucky. Cambridge. Massachusetts.

Imel, S. 1996. Older workers. Myths and realities. Washington DC: Office of Educational Research and Improvement.

Järnefelt, N. 1998. Ikääntyvät työmarkkinoilla. Suomen EU-työvoimatutkimus. Työ, aika ja elämänvaiheet. Työmarkkinat 1998:9. Tilastokeskus, 47 - 60.

Kaeter, M. 1995. Age-old myths. Training 32 (1), 61-66.

Katajisto, J. 1991. Aikuiskoulutukseen osallistuminen kasautuu entistä enemmän hyväosaisille. Kehityspiirteitä kahden vuosikymmenen ajalta. Aikuiskasvatus 4/1991.

Kivekäs, M. 1997. Nuori on oman elämänsä ohjaajana, keinona jatkuva kouluttautuminen. Teoksessa L. Viinamäki (toim.) Opiskellakko vai ei? Näkökulmia opiskelusta 1990-luvulla. Lapin yliopisto: Yhteiskunta tieteellisiä julkaisuja. C. Työpapereita 23. Rovaniemi: Lapin yliopisto. 41- 61.

KM 1996:14. Ikääntyvät työelämässä. Ikääntyvien työllistämisedellytysten parantamista selvittäneen komitean mietintö. Työministeriö. Helsinki.

Matikainen, E. 1995. Työkykyä ylläpitävän toiminnan organisointi ja käytännön toteutus työpaikalla. Teoksessa Hyvä työkyky. Toim. E. Matikainen, T. Aro, R. Kalimo, J. Ilmarinen & I. Torstila. Työterveyslaitos. Eläkevakuutusosakeyhtiö Ilmarinen. Helsinki, 47 – 59.

Ministry of Education 1998. Koulutuspolitiikasta elinikäisen oppimisen edistämispolitiikkaan.

Ministry of Labour 1998. Työvoima 2017. Paranevaan työllisyyteen ja hyvinvointiin uuden vuosisadan alkaessa. Väliraportti. Työpoliittinen tutkimus nro 184. Työministeriö. Helsinki.

Ministry of Labour & Ministry of Social Affairs and Health 1999. Ehdotus Kansallisen Ikäohjelman seurantajärjestelmäksi. Helsinki: Oy Edita Ab.

Ministry of Labour 1999. Työllisyys ja hyvinvointi uuden vuosituhannen alkaessa. Työvoima 2017 loppuraportti. Työpoliittinen tutkimus 200. Helsinki: Hakapaino Oy.

Ministry of Social Affairs and Health 1999. Työolojen vaikutukset ikääntyvän henkilöstön työkykyyn ja niiden taloudellinen merkitys. Julkaisuja 1999:13. Helsinki: Oy Edita Ab.

Nätti, J. (1997). Atypical employment and gender in Finland. Keskusteluaiheita 602. ETLA Helsinki.

OECD 1995. The transition from work to retirement. Social policy studies no. 16. OECD: Paris.

OECD 2000. Education at a Glance. OECD Indicators. OECD: Paris.

Rachel, J. R. 1990. The Social Context of Adult and Continuing Education. Teoksessa S. B. Merriam & P. M. Cunningham (toim.) Handbook of Adult and Continuing Education. The Jossey-Bass Higher Education Series. San Francisco/Owford: Jossey Bass Publishers, 3-14.

Rinne, R., Kivinen, O. & Ahola, S. 1992. Aikuisten kouluttautuminen Suomessa. Osallistuminen, kasautuminen ja preferenssit. Turun yliopisto. Koulutussosiologian tutkimusyksikkö. Raportteja 10. Turku.

Rinne, R. 1998. Akateemiset tutkinnot muuttuvana työmarkkinavaluuttana. Teoksessa M.R. Järvinen, R. Rinne & E. Lehtinen (toim.) Yliopistot ja muuttuva työelämä. Turun yliopisto. Kasvatustieteiden tiedekunta B:60.

Rinne, R. & Salmi, E. 1998. Oppimisen uusi järjestys. Uhkien ja verkostojen maailma koulun ja elämänmittaisen opiskelun haasteena. Tampere: Vastapaino.

Statistics Finland 1997. Aikuisopiskelu Suomessa. Aikuiskoulutustutkimus 1995. Tilastokeskus 1997:4. Helsinki.

Statistics Finland 1998. Statistical Yearbook of Finland. Helsinki

Statistics Finland 2000. http://www.stat.fi/tk/el/tyoll06s.html 15.6.2000

Suikkanen, A. & Linnakangas, R. (1998). Uusi työmarkkinajärjestys? SITRA 182. Helsinki: SITRA.

Vänttinen, P. 1999. Turun yliopistosta vuonna 1997 valmistuneiden työllistyminen. Rehtorinviraston julkaisusarja1/1999. Turun yliopisto.

Factors influencing learners' perceptions of the quality of computer based learning materials

Sally Sambrook

Abstract

This paper reports on a research study conducted in the UK, exploring learners' perceptions of the quality of computer based learning materials. It is argued that with the continuing shift from training to learning, the encouragement of lifelong learning from the UK government and an increasing emphasis on individual and collective learning to enhance competitive advantage, there are increasing pressures to find innovative and effective approaches to learning within organisations. New education and training technologies are emerging, offering potentially accessible, flexible and affordable opportunities for learning. With the growing supply of computer based learning materials, and as responsibility for developing employees shifts, it is important for managers and HRD practitioners to be able to judge the quality of ICT based learning resources to assure effective learning. Yet, this is often a difficult task and a potential barrier to the use of computer based learning. Researchers in the Centre for Learning Development at the University of Wales Bangor have developed a series of evaluation tools within a quality assurance system. A feature of the Learner Evaluation Tool is the use of qualitative methods to elicit learners' experiences. This data enables managers and HRD practitioners to recognise, understand and address factors - identified by learners themselves - that might influence, positively or negatively, the effectiveness of ICT based learning in education and work contexts. The paper explores qualitative data associated with learners' quality judgements and identifies factors influencing learning. Research findings suggest that the same factors could be both positive and negative features, highlighting the complexity and subjectivity of investigating learners' perceptions of the quality of computer based learning materials. However, it is argued that identifying such factors is an important step enabling managers and HRD practitioners to recognise how learning might be hindered or helped within the ICT context.

Factors influencing learners' perceptions of the quality of computer based learning materials

Sally Sambrook[1]

Introduction

This paper reports on a two-year project, funded by the National Assembly for Wales, to develop a quality assurance system for computer based learning materials. This comprehensive yet flexible system provides a series of evaluation tools to assist in the design and selection of quality computer based learning resources. Hence, the research is of an applied nature and is relevant to all forms of education and training for business.

The paper presents the emerging results of the research project, which is described briefly below. The overall research project explores means of evaluating the pedagogical quality of computer based learning materials and investigates the links between quality evaluations and actual learning outcomes. However, the particular focus of this paper is upon one aspect of the research - that is, identifying and exploring factors that influence learners' perceptions of the quality of computer based learning materials, drawing upon learners' freely offered comments.

Context

Lifelong learning is deemed an important topic, as Europe develops towards a 'learning society,' (Brandsma 1997, Gass 1996). In the United Kingdom, there has been an increasing focus on *learning*. British academics published 'A Declaration on Learning' (Learning Declaration Group 1998). The government published a Green Paper on life long learning (DfEE 1998), highlighting the changing nature of work, the need for re-skilling as traditional industries decline and new technologies emerge, and the need for *everyone* to engage in ongoing learning. This last point raises the question of access - how can those distanced from work-based training or adult education centres and higher education institutions access quality learning? Work organisations are an important partner in the learning society. Large organisations develop an HRD infrastructure to provide training and development opportunities internally, and thus provide access to formal forms of learning. For example, the Learning and Training at Work 1999 survey (DfEE 2000) demonstrates that the proportion of employers providing off-the-job training increases with the size of the employer's workforce. However, recent research suggests that there are new approaches evident in large organisations that also emphasise the shift towards *learning*, and more informal forms of learning - rather than training (Sambrook & Stewart 2000). Such a shift might develop into what Watkins defines as a learning infrastructure (Watkins & Ellinger 1998). However, smaller organisations often lack any HRD infrastructure, having to resort to 'formal' government initiatives to provide training opportunities, where the formality of provision is often incongruent with the informality and spontaneity of SMEs (Hill & Stewart 2000). Yet, the European Commission recognises that the fate of

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[1] The project was conducted when the author was employed as project manager at the Centre for Learning Development, University of Wales Bangor. The author acknowledges the contribution of the principal investigator, Dr S Geertshuis, and the research team: M Bristol, D Cheseldine, M Hobson, L Hopkins, S Holmes, L Sandercock and R Willis.

SMEs is vital to regenerate areas where traditional industries have contracted due to fierce global competition (EC 1998). To achieve competitive advantage and survive, it is argued that organisations need to develop their learning capacity, that is - manage their individual and collective learning processes, become learning organisations and engage in knowledge management (Argyris & Schon 1978, Porter 1990, Senge 1990, Nonaka 1991, Moingeon & Edmondson 1996). However, in the SME context, employees and managers are often confronted with internal and external resource constraints, such as problems of lack of time and lack of local provision (Hyland & Matlay 1997). The growing availability of information and communication technologies (ICTs) and computer based learning offer potentially accessible, affordable and flexible solutions for training within SMEs.

In the UK, the University for Industry (UfI) has been established to help enhance the competitiveness of British industry by stimulating demand for lifelong learning among businesses and individuals and improving access to relevant high-quality learning resources. The UfI aims to encourage lifelong learning by drawing upon developments in education and training technology. This takes the form of establishing learndirect centres - located in public places such as libraries, local colleges and hospitals - and commissioning computer based learning materials to be used in these centres. However, the success of computer based learning depends on developing learning resources that are engaging and efficient in promoting learning, skills development, knowledge acquisition and understanding. Yet, when selecting an information and communication technology (ICT) based resource, it is difficult for a learner or even an experienced trainer (Carr 1990) to judge pedagogical quality. It is this potential barrier to learning that has been the focus of this research project.

The UfI is a government initiative, and with the advent of devolved government, the project has been funded by the National Assembly for Wales, in preparation of the University for Industry in Wales. As across Europe, a significant feature of the Welsh economy is the proliferation of SMEs. Across Wales the proportion of SMEs is 90%, yet in North West Wales this rises to 98%, with 67% of organisations employing less than 50 employees (WDA 2000). In an economic analysis of the North West Wales region (WDA 2000), two of the key issues identified are relevant to this paper. First, there is a need to increase the skills and knowledge base - through employee lifelong learning and strengthened links between business and higher education, to help SMEs who lack their own HRD infrastructure. Second, there is a need for more effective use of ICTs to help overcome the problems of remoteness and to stimulate e-commerce and e-learning, given that around 90% of small firms use computers.

Whilst computer based learning offers potential solutions regarding access to quality learning (through flexibility of delivery mode and location, for example), it also brings certain problems, such as the level of IT skills required by learners and fear of technology. Possibly the greatest barrier, however, is being able to judge the quality of - and hence make informed decisions about selecting and using - ICT based resources.

The project

Given this context, and to help overcome these potential barriers to learning, researchers at the Centre for Learning Development at the University of Wales Bangor

(UWB) are involved in a two-year project focusing on the pedagogical quality of learning materials designed to stimulate lifelong learning, and specifically learning relevant to business. The aim is to establish an approach to quality standards for computer based learning materials, and the research team has interpreted this to mean developing a quality assurance system. Defining quality is a complex and subjective process. Perspectives on quality vary according to whom might be using the computer based learning materials, for what reasons and how. The quality assurance system being developed at UWB will address these diverse perspectives. The innovative system, designed for multiple user groups and uses, will enable producers, managers, trainers and learners to understand and use a validated set of criteria for judging the pedagogical quality of computer based learning materials.

Two key objectives of the project were to: (i) investigate and compare quality judgements made by trainers/educators and learners and (ii) investigate the relationship between quality judgements and learning outcomes, the hypothesis being that high correlations would enhance the predictive nature of the evaluation tools. Thus, the research design incorporates both quantitative and qualitative methods. The research includes a critical review of literature on pedagogical and quality issues associated with computer based learning, and three empirical studies. It is the third study that is the focus of this paper. The aim of this study was to further test evaluation tools developed from previous studies, examine the perceptions of learners regarding their quality judgements of a range of computer based learning materials and compare these with their measured learning outcomes.

Methodology

This paper focuses on one element of the study, exploring factors influencing learners' quality judgements. These were gathered from the Learner Evaluation Tool.

Research tools - Learner Evaluation Tool

The study was designed to further validate the Learner Evaluation Tool. Two versions of this questionnaire were developed - one online and the other paper-based. The online version was the complete questionnaire, whilst the paper-based one was a basic and shorter version designed especially for potential participants with more basic IT skills. Informed by the literature review, researchers categorised questions seeking learners' perceptions into five dimensions: general issues; access issues; design issues; issues concerned with the quality of the learning experience; and learning outcomes. For each dimension, participants were asked to respond to specific statements (91 in all) by scoring on a Likert-type scale. In addition, at the end of each section, learners were asked to comment upon both positive and negative features of that aspect of their chosen computer based learning material. This approach was similar to the critical incident technique, allowing learners to express what are important factors *to them* in making their quality judgements. Both questionnaires incorporated the qualitative element - in the form of text boxes in which participants were asked to type or write their comments on the quality of each dimension. The questionnaires were distributed at random, although participants with particular difficulties working online were deliberately given the basic version.

Selection of learning materials

Individual modules from five different computer based learning materials were selected for the study, offering a range of subjects and required levels of IT skills. These included an introduction to computers, internet search techniques, an explanation of web addresses, teambuilding and appraisal interviewing. The first was a basic module for learners with little ICT knowledge and skills. The next two modules were suitable for learners with more ICT knowledge and skills, and who were wishing to extend these. The last two modules were suitable for those wishing to learn about subjects other than how to use ICTs, and required some ICT skills. All courses were work-related and had relevance to the SME context.

Research methods

A study was conducted during June/July 2000, involving 159 participants, recruited from the North Wales area. There was a wide spread of age and experience amongst the participants, including employees of SMEs, recent graduates engaged in work experience within SMEs and those not in work but engaged in vocational training. Participants chose the learning material they wished to use, were given as much time as they required to complete the material and were then asked to complete one of the two Learner Evaluation Tools.

Analysis

For both the online and paper-based questionnaires, the responses were recorded by the participant. They were either typed into the online questionnaire by respondents themselves (electronic transcripts), or transcribed by the researchers from the hand-written comments on the paper-based questionnaire. The data were entered into an SPSS file, and the qualitative data were copied to a Word document for analysis. Drawing upon these freely offered qualitative responses, factors that influenced learners' perceptions have been analysed using framework analysis (Ritchie & Spencer 1994), a process similar to factor analysis. Each of the pre-determined categories provides an initial framework in which to analyse those specific comments. Content analysis involved identifying particular words/phrases, constructing appropriate codes to reflect the emerging themes, coding the transcripts, and then analysing the content for frequency of mention of each theme, or factor. Within each sentence, there may be reference to more than one factor. Overall, there were 762 comments, analysed by dimension in Table 1 below. Counting the number of times a particular element of content is mentioned provides an overview of the emerging factors influencing learners' judgements of quality. Further analysis examines the rich detail provided in learners' comments and explores potential links between the various themes.

Dimension	General	Access	Design	Learning Quality	Learning Outcomes	TOTAL
No. of comments	242	122	165	145	88	762

Table 1: Analysis of comments by dimension

Factors Influencing Learning – content analysis

This section reports the findings of the initial content analysis, indicating the various factors identified by learners as influencing the quality of a range of computer based learning materials. Given the five dimensions, it was anticipated that certain factors would be specific to each dimension, thus creating distinct categories within the initial framework. However, content analysis suggests that many of the factors influence learners' perceptions across the five broad dimensions.

Overall, 33 different factors were identified (see Table 2, below). Most of these factors were mentioned in all dimensions, suggesting their relative importance in influencing learners' judgements of quality. However, certain factors were more prominent in specific dimensions.

Factor	Positive	Negative	Total	%
USERFRIENDLY - ease of use, instructions	106	5	114	14.9
PRESENTATION - eg clear, accurate, no mistakes	34	14	48	6.3
GRAPHICS - eg pictures, diagrams,	22	23	45	5.9
INTEREST - eg interesting and engaging or boring	21	21	42	5.5
INFORMATION - eg amount, too little or overload	28	13	41	5.4
KNOWLEDGE – knowledge gained	34	6	40	5.2
UNDERSTANDING - eg easy or difficult to understand	31	9	40	5.2
LEVEL - eg too basic or too deep	5	30	35	4.6
TYPE OF LEARNING - eg rote, memory, discussion	19	15	34	4.5
LANGUAGE - easy or too difficult to read, jargon, definitions	26	7	33	4.3
TEXT - eg amount and balance with graphics	12	21	33	4.3
LENGTH - eg too short or too long	8	16	24	3.1
NAVIGATION - eg moving about package and other sites	12	11	23	3.0
STRUCTURE - eg in chunks, logical	15	7	22	2.9
USEFULNESS - eg relevance, transferability	18	3	21	2.8
PRACTICE - eg opportunity to practice, experiment, use	1	19	20	2.6
INTERACTION - interactive or not	8	9	17	2.2
EXPLANATION - eg how well the material was explained	13	4	17	2.2
ASSESSMENT - pre-test, self-test, post-test opportunities	7	7	14	1.8
IT SKILLS - eg appropriate for beginner	11	2	13	1.7
COLOUR - eg use of colour in text, to highlight key points	9	4	13	1.7
PACE - eg ability to progress at own pace	10	2	12	1.6
HARDWARE - eg size of screen, use of mouse	2	9	11	1.4
EXAMPLES - use of examples	3	6	9	1.2
ENJOYMENT - eg fun	7	1	8	1.0
CONFIDENCE - eg reduced fear of computer based learning	8	0	8	1.0
PROGRESS - eg ability to learn further	5	3	8	1.0
FEEDBACK - eg on tests, wrong answers	6	0	6	0.8
LINKS - to other sites, content	4	0	4	0.5
SCROLLING - eg moving about text within pages	0	4	4	0.5
INTERFACE	2	0	2	0.3
HELP - eg online help facility	2	0	2	0.3
LEARNER CONTROL - eg choice, self-directed	2	0	2	0.3

Table 2: Analysis of overall comments, ranked according to frequency of mention

As learners were asked to identify positive and negative aspects of each different section, it is useful to summarise the top four factors for each section and provide a short commentary (see Table 3 below).

Section	Top 4 factors	Commentary
General	• Userfriendly	In the first section of the questionnaire, participants were

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	• Information • Language • Understanding	asked for their general comments. The text boxes for this section attracted the most responses, probably as it was the first opportunity for learners to offer comments. 31 of the 33 factors are mentioned, with no reference to ***help*** or ***learner control***.
Access	• Userfriendly • Language • Understanding • Level	22 factors were mentioned and most responses were positive. Here, we were interested in factors that either helped or hindered learners to get started and engage with the learning materials.
Design	• Graphics • Presentation • Text • Userfriendly	These factors were perhaps expected when learners were asked to comment on what the material looked like and how easy it was to move about. It is interesting to note the number of references to understanding and engagement, suggesting a close relationship between the design of an ICT based learning material, the extent to which it engages learners and how this helps or hinders learners' understanding of the material. These were issues we expected to find in the learning quality section.
Learning quality	• Knowledge • Type of learning • Interest • Practice	It is interesting to note that factors such as understanding, enjoyment, explanation, structure, learner control, examples and feedback were ranked very low in this section. These are factors we would perhaps expect to be important in judging the quality of the learning experience.
Learning outcomes	• Knowledge • Type of learning • Useful • Information	These factors were expected for this section. They focus on how much knowledge was gained, the type of learning involved, its usefulness (or transferability) and the quality of the content (information).

Table 3: Top four factors for each section and short commentary

This brief analysis of the top four factors in each section reveals 13 common factors, with six recurring factors: *userfriendly, information, language, understanding, knowledge and type of learning*. Eleven of these factors feature in the top group identified in Table 2, accounting for two thirds of the total comments. This would confirm their importance and relevance when learners make judgements about the quality of computer based learning materials. However, rather than analyse each section - as many of the comments occurred across many of the sections - this paper will focus on the aggregated comments.

Overall, the most significant factor was the extent to which the computer based learning material was perceived as being *userfriendly* and this was reported as a positive factor in 93% of these comments. It is interesting to note that the top eleven factors account for two thirds (66%) of the total number of comments. This would suggest that the most important factors influencing learners' judgements of quality are:

- USERFRIENDLY - the extent to which the material is easy to use, with clear instructions
- PRESENTATION - clear and accurate, with no mistakes such as spelling errors
- GRAPHICS - the number and quality of pictures and diagrams
- INTEREST - whether the material generates interest or is found to be boring
- INFORMATION - the amount and quality of the content, whether there is too little or overload

- KNOWLEDGE - the extent to which new knowledge is gained
- UNDERSTANDING - whether the material is easy or difficult to understand
- LEVEL - whether the material is considered too basic or too deep for the learner's current knowledge and skills
- TYPE OF LEARNING - for example, whether deep learning or rote learning, memorising facts
- LANGUAGE - whether the language was difficult to read, using jargons or lacking definitions
- TEXT - the amount of text and the balance with graphics

Having identified the key influencing factors according to frequency of mention, the next section of the paper presents learners' own comments.

Factors Influencing Learning – learners' comments

Here, we present comments - both negative and positive – recorded by learners, beginning with the most frequently mentioned factor.

Userfriendly

The dominant factor was *userfriendly,* accounting for around 15% of the total comments. The majority of responses were positive, such as 'very easy to use,' 'simplicity,' 'very userfriendly,' 'easy to follow,' 'clear how to use it' and 'detailed instructions.' However, other comments were, 'I was a little unclear on how to actually commence the course,' '(it) got a bit confusing towards the end,' and 'I think may be it could have been explained exactly what to click on etc since there are many people who are not used to using computers.' Userfriendliness was particularly important to those unfamiliar with computers, with learners noting, 'not used a computer before, so once I got started I found it very easy,' and 'starting the course should pose no problem for those who have used the internet before.' One even commented, 'very user friendly, would recommend to those with less confidence to try this course.'

Presentation

Presentation accounted for just over 6% of the comments, and received more positive than negative responses. These included 'well presented, good layout,' 'not too bland,' 'nicely laid out - not cluttered with links and options,' 'good looking,' and interestingly, 'well presented for someone with little experience with computers.' However, some learners wrote 'not attractive form, format not very memorable,' 'the layout of the pages was quite complicated,' 'typeface was a bit small in areas' and 'arial font not the easiest to be read quickly. Thinner columns (are) easier to read fast.'

Graphics

Graphics accounted for almost 6% of the responses. However, these were mixed, with more negative than positive comments. Positive comments included, 'attractive graphics,' 'very good graphics,' and 'not too graphic heavy, not too long to load, visually very pleasant.' Negative comments included, 'no graphics,' 'I prefer more of a visual experience when using the internet - diagrams etc,' 'could have done with moving graphics,' 'graphics seemed a bit dated,' and 'graphics were not very appealing or exciting.' One learner stated that 'the graphics were not particularly inspiring and looked like cheap clipart. Good quality graphics especially designed could be used to illustrate points better, eg parts of a computer.' One even wrote, 'boring layout. Pictures - what pictures? Pictures would have been nice.'

Several comments linked the use of graphics and learner *interest* or engagement. 'More graphics might interest the user a bit more,' 'lack of graphics and variety could become tedious if the course was longer,' and 'more colour and pictures would have made learning more interesting.' One suggested, 'could jazz it up a bit, could be monotonous to those with short attention spans.' Other references to engagement included, 'it was slightly dull,' 'the appearance was a little bland (and) this lead to boredom.' However, others commented that the 'attractive opening pages - encouraged me to go on. The key info was highlighted, (to) catch the learners attention,' and that 'it was simple but not boring.' Another wrote of, 'having to interact with the package to keep interest.'

Some comments linked the use of graphics to *understanding,* such as 'good use of diagrams to help understanding,' 'there was a fair amount of graphics which made the unit easier,' and 'good clear illustrations - just the right size - illustrations and other diagrams were also very basic so that they could be easily referred to and understood. I think the design of the course was suitable for the purpose.'

Interest

Comments referring to *interest* - whether the material was engaging - were mixed. Some learners commented, 'it was interesting,' 'it held interest,' and one noted that 'people use the web without worrying about details, but it is interesting to learn about them.' However, there were more negative aspects than positive with comments like, '(it) gets rather tedious towards the end,' 'monotony - just reading,' 'nothing to encourage you or keep you focused,' 'got boring,' 'more detailed examples would add interest,' and 'the course was far too basic for my needs hence I got very bored very quickly.' Linked to this was a comment about *knowledge* gained and *enjoyment*. 'I learnt basic history about computers and their use in society today all in a informal, fun and interesting way.'

Information

When referring to the content of the learning material, *information* was another important factor, with more positive than negative comments. Responses varied, including 'very informative,' 'lots of information,' 'there wasn't too much information on each page,' 'useful basic information,' as well as 'too much information,' 'information overload,' 'information dump' and 'lack of useful information.'

Knowledge

In terms of *knowledge* gained, more comments were positive, such as 'It definitely taught me about the subject material - hence mission accomplished,' 'I discovered that I already know more than I realised about this subject,' and 'it clarified some queries.' Learners wrote, 'I now know how web addresses are made up,' 'I understand the internet much better now,' understand more about computers,' 'I learnt how to do specific searches,' 'I know more than I did,' 'I have learned the basics,' and even 'I learnt something and it was pain free.' However, some wrote, 'didn't really learn anything,' ' I learnt things I already knew,' and 'I learned very little because I consider my self to be an advanced user, hence the course level was too low.' This links knowledge gained with the *level* of the learning material.

Understanding

Also closely linked to knowledge was *understanding,* again with more positive than negative comments. Learners wrote, '(the) course was done in a way that was easy to understand,' 'it was simple to understand,' and 'showed an easy way, that was the most important before going into details - making it easier to understand, especially if you're new to the subject.' One learner makes the link between language and understandability, noting the 'section on unique site names was quite hard and use of language here could be improved.' Another links understanding and the use of explanations stating, 'it explained aspects clearly and (these) were detailed making it easy to understand.' However, negative responses included, 'it was difficult to understand at the beginning,' and 'difficult to follow section progress.'

Level

A particularly negative factor was *level,* with most comments referring to the course chosen being too basic. For example, 'parts were too basic,' 'level of info - very basic,' 'not taxing enough,' 'already know most of what I learnt,' 'more basic than expected' and 'the course was a bit too basic for my ability.' However, other learners stated that the learning material was 'perfect for my level of expertise,' and 'it was set at the right level.' Other comments referred to the level as being too difficult, such as 'not basic enough for a beginner,' 'descriptions needed an intermediate knowledge of computers,' 'assumed prior knowledge,' and 'very intense and heavy going.' One even commented that the course was, 'written by experts maybe unaware of the gulf in knowledge between them and the lay man. Seemed to presume that students had complete knowledge of computers.' This suggests that the ability of managers, HRD practitioners and learners to select learning materials of an appropriate level is crucial.

Type of learning

As for *type of learning*, this factor attracted mixed responses. Some participants noted that 'the information given in the course was easy to remember,' 'the pictures helped a lot during the learning,' 'it sets things out easily so it was easy to learn,' 'easy to learn, option to go back and reread anything not understood first time around,' and 'I was able to understand clearly some thing which I had previously been taught about and had not properly (understood).' One learner wrote, '(it) reinforced what I already knew.' However, other learners commented that, 'after a while I began to forget things as it all looks the same,' and 'I'm not sure how much of the information I will retain.' One criticised the 'rote learning. I didn't feel I learnt in a deep way. The test was based on memorizing words/sentences, which were not open to interpretation.' Another 'would have liked the opportunity to put this knowledge to use, testing it out and providing a chance to consolidate the knowledge.' Another wrote 'I still find using books to learn through the most natural way, so it takes time to adapt to learning from a screen.' A further comment noted, '(you) need (a) tutor alongside to discuss key points - when (the) package doesn't provide (a) chance,' and similarly, another learner stated 'I think learning by discussing with others - hearing about their experiences are a more fun way of learning. Communicating and finding out facts yourself (books) inspires me more.'

Language

The *language* factor was also important, attracting mainly positive comments. Learners wrote, 'the language was easy to understand,' 'very easy to read, uncommon within online learning,' 'presented in a simple form without too much jargon,' 'the course was clearly written,' and 'unpatronising.' However, 'some words were not defined,' 'a couple of terms were used before they were explained,' and 'a glossary could be inserted.' Linking *language* with *access,* learners noted that it was, 'easy to access but some of the terminology was difficult to read.' However, others found 'clear language - no jargon,' and 'terminology was simple and new concepts introduced well.' Linking language and understanding, one learner commented, '(it) was in my opinion very easy to follow and understand. The words used were suitable for my level of understanding about computers in general.'

Text

The issue of *text* received mainly negative comments. Positive comments included, 'text presentation of material was fine,' 'it was easy to read.' Negative comments included 'cramped text,' 'text book feel to design of material … could be more updated,' 'at times the writing was too small and difficult to read,' 'all text, nothing to break it up,' 'there was a lot of reading. Maybe more practical work could be added,' and 'it had too much writing.' Another added, 'I was glad the window wasn't full screen as I find it hard to read (and find next line) when text is across the full screen.' Other references to the amount of text link closely with the use of *graphics*. Here learners commented that there was 'not enough graphics and interactivity to break up the text,' 'more graphics - less text required, felt too much like reading a book,' and 'the course was mainly text, which made the info difficult to absorb.' However, others thought there was a 'good balance between graphics and text.'

These eleven factors account for around two thirds of participants' responses, suggesting their relative importance when learners are judging the quality of online learning materials. However, other factors also warrant discussion. The next part of the paper shares some of the more interesting comments.

Other comments

Many learners referred to the *length* of the learning material, and there were twice as many negative comments as positive. Opinions varied from the material being 'concise,' to 'a bit too short,' and from being 'quick,' to '(it) went on too long.' However, learners were participants in a research study and only required to use one module from the course. This could account for comments about the brevity of the material. Conversely, those who commented on the excessive length were also using only one part of a course, and as one learner noted, 'individual sections were too long.'

The *navigation* factor received mixed responses. Navigating around the material caused some learners few problems, with comments such as, 'very clear to navigate through the site,' 'it was easy to move from one page to the next and instructions were clear,' 'easy to move around material,' and 'easy to find your way around.' However, other learners thought 'it was difficult to know which button to press when I wanted to continue,' and 'at the end of the section I wasn't clear where to go next.' Linking presentation and navigation, one learner noted that, 'the design of all the pages was similar so that is was hard to realise that you had moved on a page.' Another complained that, 'it recommended searching the web for addresses - then had trouble getting back.' Another wrote, 'it wasn't totally clear in the first instance that after leaving the course to perform a search, that I would be able to re-enter the course with ease.' This was an issue raised in previous studies using 'open' web based learning materials with links to 'outside' sites. Similarly, one learner made the link between navigation and practice, noting '(I) was not able to try out things without leaving the course.' Other negative comments included, 'some people might find it hard to know exactly how to get through it especially if your not used to computers and the internet,' 'seemed a little difficult to go backwards' and 'it was odd moving from place to place.' Linked to this, some *hardware* problems were encountered, with comments such as, '(it) can be slow. Course completely stuck at one point,' and 'just that it relied on how well the server was running!' Another noted, 'it is dependent on the availability and quality of the technology available eg my monitor was poor, hence it made it more difficult for me.' Yet, one learner was impressed by the fact that the learning material used the 'mouse only - no need for typing,' suggesting that poor typing skills might hinder access to ICT based courses.

The *structure* of the learning material generated more positive than negative comments such as, 'it described it very easily step by step,' 'content was broken down into digestible chunks,' 'the summary was good,' 'blocks were of a manageable size,' and 'very logical.' However, other responses included, 'difficult to follow section progress,' 'I felt that smaller sections would have been easier to take in,' 'not always clear where I was on the course - work needs practical application,' and 'sometimes hard to know exactly where you were in each block.' Several participants linked the *length* factor with the structure of the learning material. Linking several other factors, one learner wrote, '(it) started with the basics and made reference to what I needed to know to start off and gave reference to where I could find out if I didn't know.'

Usefulness was an important factor, with learners noting, 'it will help me quickly retrieve info from the internet at work,' 'it was applicable to the computers I use in every day circumstances,' 'I can use it in my work,' 'useful when playing on computers,' 'at the end of the course I have learnt something new which I would be able to use as part of my career,' and 'I work with a group of 5, I now understand how to resolve conflicts within the group and why it is important to work together.' However, one learner 'felt some of the information was irrelevant.' It is likely that transfer of learning will be an important issue for managers and HRD practitioners in their evaluation and selection of computer based learning materials.

Referring to other less frequently mentioned factors, some of the interesting comments included, '(a) let down was the nature of the scrolling and screen size of computer. Maybe easier with a location bar at (the) side that would allow to move up/down easily. Frustrating to have to scroll through material.' This refers to both *hardware* problems and *scrolling*, which frustrated several other participants. Another learner wrote, 'the course was good but presented in a rather text oriented manner. As it was presented on computer, animations would have been fun and aided learning.' This refers to the excess of *text* and dearth of *graphics*, reducing *enjoyment*. On a similar theme, and with reference to *interaction*, one learner complained of 'no interactive stuff - may as well have read a book - easier too! No opportunity for practice.' This could suggest that it might be easier to access books and achieve similar learning if ICT based materials do not exploit what could be considered their added value in offering greater interactivity and opportunities to practise.

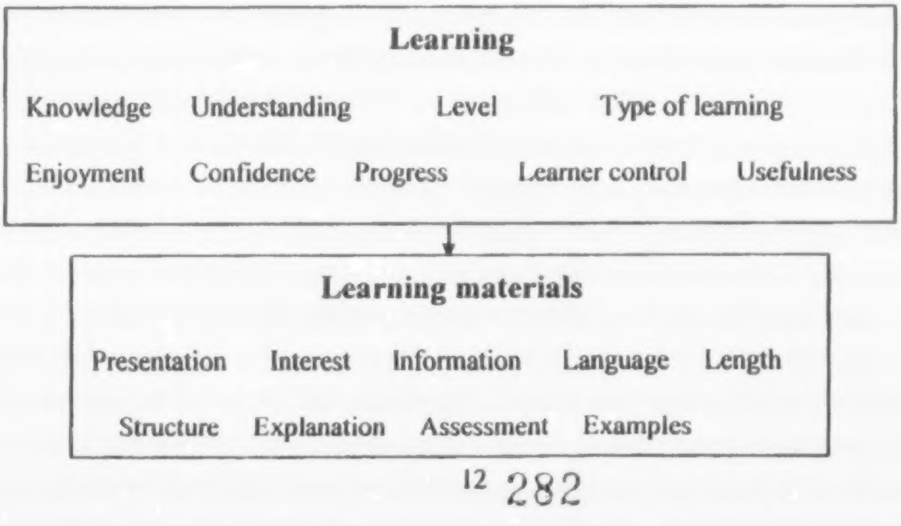
Colour was an important factor with some learners writing, 'it wasn't too much colour,' 'background colour just right,' 'green very easy colour to read, relaxing colour,' 'bright and colourful, appealing to the eye,' 'it was very attractive and colourful,' and 'the colour scheme made it more appealing to use without making it too garnished.' However, others wrote, 'not enough colour in the diagrams,' and 'key concepts could be highlighted more i.e. different colour.'

Pace was an important and positive factor, with learners noting, 'the format and descriptions allowed me to learn at a steady pace,' 'interesting, unlike conventional teaching, you could go at your own pace,' 'I could learn at my own pace,' 'you could move along through the course at your own pace,' and 'able to learn at own pace - no feeling of boredom if waiting for others to understand or worry of falling behind as you might in a training group.' A link was also made to *assessment*, which received mixed responses. One learner wrote, 'it's good to learn at your own pace, and to be able to get assessed as you're going along.' However, others noted that there 'was not enough opportunity to test yourself,' 'the final test was just a replica of the questions at the end of each section - didn't evaluate how much was learned,' and 'the assessment sections were slightly misleading about whether you should answer the questions or not.'

Other interesting comments relate to learners' increasing *confidence* in using ICTs and computer based learning. These included, 'first time to use a computer. It has given me much confidence,' and 'clear info made it suitable for all users. The course built my confidence in using computers in the future.'

Some implications of the findings: factors influencing learning

The analysis so far has concentrated on identifying individual factors referred to by learners in their quality judgements of computer based learning materials. However, it is suggested that these influencing factors can also be constructed into three generic and hierarchical themes. These are (i) learning, (ii) learning materials, and (iii) computer based learning materials, illustrated in the model in Figure 1 below.



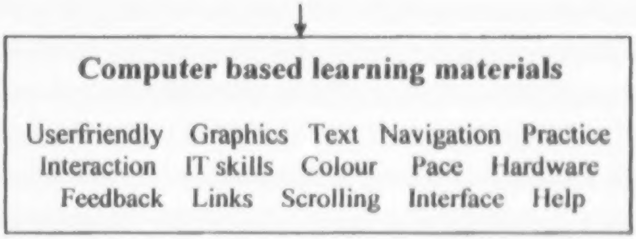

Computer based learning materials
Userfriendly Graphics Text Navigation Practice
Interaction IT skills Colour Pace Hardware
Feedback Links Scrolling Interface Help

Figure 1: Factors influencing learning: 3 generic and hierarchical themes

Drawing upon learners' own comments, this model provides a useful tool to raise awareness, in a systematic way, of the whole range of factors learners consider when evaluating the quality of ICT resources. This may provide practical assistance to managers, HRD practitioners and material producers during their decision making processes – whether designing, evaluating or selecting computer based learning materials. It highlights that when learners were asked to judge the quality of the learning materials, they did not only focus on specific features of ICT resources. Instead, they made reference to the much broader issues related to learning in general. However, this model does not suggest that learners first consider learning in general, and move down the hierarchy to the specific learning materials themselves. Empirical evidence suggests that the most significant factor influencing learning and the quality of online learning materials was userfriendliness.

Conclusions

Two key factors influencing the demand and supply of computer based learning materials will be (i) learners' perceptions of their quality and impact on learning, and (ii) trainers'/managers' perceptions of their effectiveness regarding their impact on work performance. Factors influencing learners' perceptions have been identified in this paper. Further analysis is required to compare these with learning outcomes, and further research is being conducted to investigate trainers' perceptions.

Overall, the top eleven factors account for two thirds (66%) of the total number of comments. This would suggest that the most important factors influencing learners' judgements of quality are: *userfriendly; presentation; graphics; engagement; information; knowledge; understanding; level; type of learning; language*; and *text*.

The most significant factor was *userfriendly*, and this is especially important in the context of ICT based learning materials where the learner could be alone and isolated. From the quantitative analysis of frequency of mention and an exploration of learners' own words, research findings suggest that the same factors could be both positive and negative features, highlighting the complexity and subjectivity of investigating learners' perceptions of the quality of computer based learning materials. Yet, with the encouragement of lifelong learning from the government, the growing supply of computer based learning materials, and an increasing emphasis on individual and collective learning to enhance competitive advantage, it is important for managers and HRD practitioners to be able to judge the quality of ICT based learning resources to assure effective learning. This is particularly pertinent in SMEs where - despite the lack of formal HRD infrastructure - computer based learning can offer accessible and flexible learning opportunities.

To address this, researchers at the Centre for Learning Development at the University of Wales Bangor have developed online evaluation tools to assist managers and HRD practitioners in their selection decisions. The tools, based on validated criteria and supported by feedback and guidance materials, form the online UWB quality assurance system. A key feature of the Learner Evaluation Tool is the opportunity for to record the more subjective factors identified by learners, factors that might influence - positively or negatively - the effectiveness of ICT based learning in both education and work contexts. Research findings suggest that the influencing factors can be constructed into three generic and hierarchical themes. These are (i) learning, (ii) learning materials, and (iii) computer based learning materials. Thus, it is useful for managers and HRD practitioners to consider these factors, not only when evaluating the quality of computer based learning materials, but when evaluating learning interventions in general. An awareness of these factors is also useful for producers to enable them to design *learner-centred* materials, by taking into account learners' perceptions of quality.

It is argued that identifying influencing factors is an important step enabling managers and HRD practitioners to recognise how learning might be hindered or helped within the ICT context. Highlighting key issues raised by learners enables managers and HRD practitioners to first acknowledge, understand and then address such factors. This is especially important as responsibilities for training and learning in work shift. HRD practitioners are increasingly taking the role of internal consultant, facilitating learning rather than providing training (Garavan 1991, Watkins & Ellinger 1998), and managers are increasingly assuming the role of role model and developer (Ellinger 1997, Horst et al 1999, Sambrook & Stewart 2000). An understanding of factors influencing not only computer based learning, but how learners judge the quality of learning experiences in general, will be crucial to these emerging roles.

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References:

Argyris C & Schon D (1978) *Organisational Learning: A theory in action perspective* Addison-Wesley

Brandsma J (1997) *Een leven lang leren: (on)mogelijkheden en perspectieven* (Lifelong learning) Enschede: University of Twente

Carr J (1999) 'The role of higher education in the effective delivery of multimedia management training to small and medium entreprises' http://ifets.gmd.de/periodical/vol_2_99/james.carr.html

Commission of the European Community (1998) 'Developing European SMEs: A study of European SMEs adopting the internet, ESPRIT/TBP project no. 22336

DfEE (1998) *The Learning Age: a renaissance for Britain*, London: HMSO

DfEE (2000) Labour Market Quarterly Report, Sheffield: Department for Education and Employment, Skills and Enterprise Network, August, ISSN 0952-2506

Ellinger AM (1997) *Managers as facilitators of learning in learning organisations* Unpublished doctoral dissertation, University of Georgia, Athens

Garavan T (1991) 'Strategic Human Resource Development' in *Journal of European Industrial*

Training Vol 15 (1) pp 17-31

Gass R (1996) *The goals, architecture and means of lifelong learning*, Background paper issued by the European Commission, Luxembourg: Office for Official Publications of the European Communities

Hill R & Stewart J (2000) 'Human resource development in small organisations' *Journal of European Industrial Training* 24 (2/3/4) pp 105-117

Horst H, Sambrook S, Stewart J & Meinicke K (1999) *'The Role of HRD within learning (orientated) organisations in creating opportunities for lifelong learning'*, ECLO International Conference, Glasgow, May

Hyland T & Matlay H (1997) 'Small Businesses, Training Needs and VET Provision' *Journal of Education and Work*, 10 (2) pp 129-139

Learning Declaration Group (1998) *A Declaration on Learning*, Learning Declaration, Pearn Kandola

Moingeon B & Edmondson A (eds) (1996*) Organisational Learning and Competitive Advantage*, Sage Publications, London.

Nonaka I (1991) 'The Knowledge-Creating Company' *Harvard Business Review* 69 (6) pp 96-104

Nonaka I (1996) 'The knowledge-creating company', in Starkey K (ed*), How Organisations Learn*, International Thomson Business Press, London.

OECD (1996) *Lifelong Learning For All*, OECD, Paris.

Porter ME (1990) *The Competitive Advantage of Nations* Free Press

Sambrook S & Stewart J (2000) 'Factors influencing learning in European learning oriented organisations: issues for management' *Journal of European Industrial Training* 24 (2/3/4) pp 209-219

Tjepkema S & Wognum AAM (1996) *'From trainer to consultant? Roles and tasks of HRD professionals in learning orientated organisations'*, ECLO International Conference, Copenhagen.

Watkins KE & Ellinger AD (1998) *Building Learning Organization: New Roles for Managers and Human Resource Developers*, Professors' Forum, IFTDO Conference, Dublin

Welsh Development Agency (2000) *An economic strategy for North West Wales* Welsh Enterprise Institute, University of Glamorgan; Centre of Enterprise and Economic Regional Development Research, Middlesex University; and School for Business and Regional Development, University of Wales Bangor

Exploring capacity-building:
Between neo-liberal globalisation and national systems of education and training

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This paper draws on a case study of a small private training provider that operates in Melbourne, Australia in order to investigate innovative educational practices arising in the context of neo-liberal globalisation. In the functionalist literature these innovative practices are commonly called 'capacity building', although the term 'capability' is sometimes used in parallel ways. But as leaders in the functionalist tradition note, 'capacity-building' is not well conceptualised. For instance, (Miles, 1998: 64), writing as if he is looking back from the year 2020, notes:

> In the 90's change researchers spoke of 'getting better at change' and 'building capacity'. But no one had a very clear model of just what this involved. It took a series of conceptual and empirical breakthroughs, well into the 10's, before we came to understand how a 'school' actually manages both change and its twin, stability, in a coherent way.

My aim in this paper is to unpack the functionalist conceptions of capacity-building. I argue that the poor conceptualisation of capacity-building is, in part, a consequence of the systems metaphor that underpins much functionalist theorising. I begin to develop a somewhat different conceptualisation that draws more sharply from the conflict tradition in sociology. On this basis, I suggest that capacity-building is a both a form of innovative educational practice and a practical politics which is forged in the retreat from statist nation-building projects, the reaffirmed tribalism which accompanies globalisation, and the reworking of social justice agendas in our times.

Background

Recent reforms of education and training in Victoria are part of a global trend toward a 'post-welfarist' society in which governments reorient their work away from a societal level and, instead, operates increasingly through individual actors and the choices they make. As (Rose, 1996: 327) notes, this work 'seeks to govern without governing society, to govern through regulated choices made by discrete and autonomous actors'. While some argue that such individualised governance and social organisation is an expression of neo-liberal reforms (eg. Marginson, 1997); others suggest that neo-liberalism is itself a consequence of broader social trends that problematise traditional national, ethnic and class identities and simultaneously endorse individuation, detraditionalisation, the pursuit of life style choices and self-management (Giddens, 1994; Yeatman, 1998).

(Lawn, 1996: 1) argues that these developments mark the end of a distinct period of educational history. In Anglo-Saxon nations, in particular, globalising dynamics have coincided with the ascent of sharply individualist neo-liberal sensibilities and have overturned longstanding bureaucratic arrangements for educational provision which institutionalised education as a non-political domain of politics. Governance was orchestrated through a centralised education bureaucracy which governed education through ostensibly universalist rules and procedures rooted in traditional authority relations rather than responding directly to particular interests. Teachers were similarly depoliticised, abstracted from their filial relations in specific cultures and communities and, instead, accorded licensed autonomy and professional status as servants of the Crown (Dale, 1989). The universalistic orientation that was endorsed in teacher's licensed autonomy was traded off against relatively low paid but secure public sector employment (Robertson, 1996).

Since the 1960s this non-political status had been problematised as activist teachers and education stakeholders contested bureaucratic managerial prerogative. In the 1980s and 1990s, education was further opened up as an overt political terrain, pressed to accommodate the demands of selected social interests and to reconfigure provision in line with non-education, non-bureaucratic incentives and disincentives. Where education had been used as an instrument of ameliorative social engineering and social control in the national interest, it was increasingly seen as a stand alone enterprise that was responsive to, and depended for overall economic survival on servicing, particular clients whether they were within or beyond the nation-state. These developments mark a retreat from education as a nation-building project.

In Victorian adult and vocational education and training such neo-liberal reforms has led to the formation of a training market in which existing public provision has been re-regulated so that particular technical and further education (TAFE) Institutes and community providers become discrete vocational education and training (VET) enterprises with increased opportunities to choose their course of action within prevailing regulatory frames. These public providers then stand alongside a growing number of private providers which can now access public funds to support their training contracts with particular clients. These marketising trends stimulate both deinstitutionalisation and quasi-privatisation of adult and vocational education and training. They encourage innovation but oriented towards particular client services rather than public service in general. These particularistic trends are confirmed as governments demand accountability on financial and managerial grounds but downplay accountability on social justice, equity and democratic participatory grounds. And politics fracture around issues of private versus public goods, responsible economic management versus social justice, and neo-liberal versus new social democratic forms of government.

Practitioners within adult and vocational education and training are actively involved in this politics of reform within education and training. They are caught by the imperatives of government, realised through changes in funding, policy, employment relations and work practices, which demand changes in their work, their identities and their commitments. Yet they are also resistant to change, particularly when their values predispose them to supporting student's learning, supporting their occupational culture and supporting the public good. Working between compliance and resistance, some teachers and managers in education and training are renegotiating the character of educational practice. They are developing new ways of conceptualising, doing and supporting learning. These emergent educational practices, arising as neo-liberalism confronts traditional education and training cultures, have been described as 'capacity-building strategies' (Fullan, 1998; Seddon & Malley, 1998; Seddon, 2000).

Capacity-building in functionalist perspective

The term 'capacity-building' is found increasingly commonly in the research literature and the discourse of education policy and practice. Yet very often, the concept is relatively empty. It is used to allude to learning processes within organisational contexts and to the inter-related processes of individual and organisational development through which learning is realised.

The notion of 'capacity-building' has become significant in recent years as a result of convergent theoretical debates about the way learning is implicated in processes of social and organisational change. The best known work on these issues has been undertaken in the functionalist tradition, both within and beyond education, but these approaches have been significantly influenced by preoccupations with agency which have reshaped the character of theorising across the social sciences in recent years (Goodin, 1996).

Functionalist theories start from the view that social life is broadly consensual, without endemic and ongoing social conflicts. Very often a system metaphor underpins theorising. Analysis focuses on an organisation or society as if it was a system, or organic unit within which there are functional interdependencies between different parts. When conflict is encountered it is commonly seen as a dysfunction or some kind of deviance from system norms. While this oversimplifies the picture, this broad approach is evident in much management and organisational theory.

Traditionally, such functionalist research emphasised the way individuals are socialised into organisational processes and cultures. It tended toward an 'oversocialised' view of people which implies that individuals and groups cannot exercise agency within organisational contexts because they have fully embraced organisational norms. More recently, this oversocialised view of people has been rejected and there has been more attention to the agency that social actors exercise within different contexts. Agency is evident in the creative responses individuals and groups develop within organisational contexts and is particularly striking in contexts which are subject to rapid change. Such organisational contexts are seen to exercise constraints on agency and also to provide resources which constitute and shape agency in particular directions. The implication is that social actors are not simply socialised into organisational norms but work within the non-negotiable organisational rules and draw on a range of resources, in and beyond the organisation, to learn. They make sense of their contexts in particular ways, generating meanings which frame and inform their action, leading to creative and innovative responses. Agency is seen as a constructivist process, a process of learning.

This new functionalist attention to agency has focused attention on learning in organisations and, more particularly, on learning as a means to organisational change. The logic is simple. If individuals and groups are active agents within organisations and their actions are driven by their learning, then organisational change - seen to be necessary because of rapid social change - can be facilitated by encouraging learning. Early work on organisational learning emphasised the importance of single and double feedback loops in organisational processes, arguing that organisational improvement required individual insight and learning to be captured within organisational structures, procedures and routines (Argyris & Schon, 1984). Senge (1990) took the notion of organisational learning further by linking it to processes of continuous change. He emphasises that a learning organisation 'is continually expanding its capacity to create its future'. This ever expanding cycle of learning in which people create 'the results they truly desire' (p.3) is achieved by joining 'survival learning/adaptive learning' to 'generative learning' (p.14). Senge's key contribution is to identify the organisational and work practices that support such generative learning as the five disciplines: personal mastery, the development of mental models, building shared vision, team learning and systems thinking.

Educational change theorists elaborate the insights of management theorists, like Senge, by emphasising that the management of organisational learning and change must attend to knowledge utilization which underpins both individual and organisational learning. Effective knowledge utilisation depends, firstly, upon an appropriate infrastructure that supports learning within organisations. As Darling-Hammond (1998) argues, this means that all people must learn to think critically, invent, produce and problem solve. The purpose of education (at all levels) must shift away from selection and differentiation, towards a 'pedagogy of understanding' that permits all learners to understand new ideas deeply enough to apply them to novel situations (p.

647). The infrastructure for organisational learning depends upon individual's having the capacity to learn how to learn; the availability of people who can enable other's learning (ie. teachers) and an appropriate public policy context that encourages investment in individual and organisational learning.

Organisational learning and change also depends upon 'moral purpose', a commitment to making a difference. But, as (Fullan, 1998: 222) argues, moral purpose is problematic today, given rapid social change and the widespread questioning of tradition and authority (what Giddens, (1994) terms 'detraditionalisation'). It means that moral frames cannot be taken for granted as in the past but must be renegotiated in a contextualised way. The implication is that the values frames within which individuals act are adopted conditionally and require individuals to 'keep faith' despite the system (p. 224). Such values inform leadership, provide a basis for 'shared vision' (Senge, 1990) and therefore frame knowledge management and utilisation. As Senge, (1990: 24) comments, the 'appearance' of consensus is important management work, depending up the active construction of consent and the management of difference and conflict in the workplace.

Functionalist theories affirm the significance of learning in organisations because it is seen as a means to necessary organisational change. The implication is that capacity-building strategies develop where there is a distinctive work organisation that supports learning, an appropriate infrastructure oriented to investment in learning, and a moral purpose committed to making a difference through learning. But there is something very bland about the way capacity-building practices and the conditions that sustain them are represented. There is little indication of the harsh reality of inequality in education and society, or of the passion which practitioners express as they support learning often in difficult circumstances. And there appears to be very little attention to the question of directionality of capacity-building beyond broad claims that moral orientations are important. I would suggest that these problems of decontextualisation, and lack of attention to power, conflict and directionality arise because of the deep influence of consensual systems metaphors on theory-building (Angus, 1993). While such approaches provide a helpful first step in understanding contemporary innovation in education, further theorising is necessary to develop more sophisticated explanations of, and guides to dealing with, capacity-building.

Towards a political theory of capacity-building

The counter-framework that I begin to develop in this paper is rooted in the view that conflict between different groups is endemic in societies. This starting point is informed by the questions Marx asked of 19th capitalism and which continue to be asked by a variety of social scientists, difference theorists and political liberals. Nussbaum (1999: 109) notes, for instance,

> The political liberal ... begins from the fact of reasonable disagreement in society, and the existence of a reasonable plurality of comprehensive doctrines about the good ...By calling themselves reasonable, the political liberal shows respect for them and commits herself to a political course that is as protective of them as it is possible to be, compatibly with a just political structure. She also shows respect for them by understanding political justification to require that the terms of cooperation should be accepted by different comprehensive views. This form of liberalism will require all citizens to accept -- not just as a modus viviendi, but on moral grounds -- the core values of the political conception, among which will be the equality of all citizens. But notice that it requires endorsement of these values as political values, not as metaphysical values or comprehensive moral values.

Endorsing this political conception of society encourages a view of the recent restructuring of education and training as an element within broader processes of social changes and social re-formation. The view that modern society was entering a post-industrial age has been superseded by more detailed analyses of disorganised capitalism (Lash & Urry, 1987), globalisation (Waters,) and informationalism (Poster,). Castells (1998) has synthesised such analyses to argue that modern society is being reshaped by the restructuring of capitalism and statism and rapid developments in information technologies. The collapse of statism (ie. communism), left capitalism as the primary mode of production. Improved technology for knowledge generation and processing permitted a new 'informational' mode of development in which knowledge became the primary sources of productivity. Castells makes three critical points here.

First, Castells argues that the shift from an industrial to an informational mode of development displaces the performance principle of capitalism away from economic growth and the maximisation of output characteristic of the industrial age towards technological development, the accumulation of knowledge and more complex information processing (p17). The effect is to valorise knowledge production and exchange in the world of work as a basis for competitive advantage and profitability. Irrespective of managers intentions, workplaces become more oriented to knowledge flows and the way they can be harnessed to create value and enhance viability in uncertain economic times. In this context, 'knowledge' becomes an important unit of analysis within work organisation and redesign. The potential economic contribution of knowledge transactions gives significance to knowledge audits and knowledge management as well as learning at work.

Second, while the historical impact of these trends towards informational capitalism are evident throughout the fabric of society, economy and culture on a global scale, they are inflected by local institutions, custom and habit at every level. The rise of informational capitalism therefore does not alter the underlying logic of capitalism as a system oriented to the pursuit and private appropriation of profit. The inequalities of industrial capitalism persist in informational capitalism but access to informational resources becomes an additional factor diffracting societies' winners and losers (Jones, 1982). Informational capitalism does not mean that there is an end to politics, as implied in the functionalist new management and educational change literatures. Rather politics is reshaped by an intensification of political struggles over identity as well as citizen-movements aimed at equity, social justice and democratisation. These politics remain significant forces which contest and reshape the emerging patterns of informational capitalism in locally distinctive ways.

Finally, Castells notes, these expressions of collective identity are powerful drivers of human action because they are sources of people's meaning and experience. They encompass proactive movements (eg. feminism, environmentalism) which drive detraditionalising agenda and also reactionary movements that 'build trenches of resistance on behalf of God, nation, ethnicity, family, locality ...the fundamental categories of millennial existence now threatened under the combined, contradictory assault of techno-economic forces and transformative social movements' (Castells, 1997: 2). He elaborates this theme by distinguishing three distinct forms of identity building: legitimising identity aimed at extending and rationalising dominant institutions; resistance identity generated by those who are devalued and marginalised by dominant social and institutional forces; and project identity generated by actors by reconfiguring available cultural resources with a view to building a new identity that repositions them within the social order. Consciously or unconsciously, these different processes of identity formation contribute in different ways to constituting society. Legitimising identities consolidate civil society; resistance identities seek a return to traditional order; and project identities drive further social transformation.

These interactive social dynamics playout in everyday experience. In the world of work they have encouraged the trend to network organisation partly as a 'post-bureaucratic' organisational reform and partly as a political stepping beyond the ossified structures of twentieth century social organisation rooted in liberalism and labourism. Network enterprises, Castells argues, are organisations in which goals, and changes in goals, drive organisational changes aimed at realising those goals. The success of the network enterprise, Castells argues, depends upon their 'connectedness', that is their capacity to enable 'noise-free' communication between components in the network, and their 'consistency', their capacity to realise shared interests between the network at large and the various network components (p.171). Such coherence and noise-free communication depends upon cultural affiliation. Organisational change therefore rests upon, and provides opportunities for, realignments which sustain affiliations on cultural and moral grounds. It encourages, on the one hand, neo-conservative parochialism and ethnic tribalism and, on the other, political tribalism characteristic of new social movements, single issue protests and other life style politics. In education too, parallel organisational and tribal trends have been fuelled by choice agenda, coupled with neo-liberal governance and resource allocations (Johnson, 1989; Ball *et al.*, 1996).

The effect of these interactive social, economic and cultural dynamics is to confirm and fuel the significance of cultural ('knowledge') production in the formation of particular, historically grounded, groups or discourse communities. Within such communities, individuals do discourse to both express and confirm community, shared meanings and expectations, particular patterns of activity, and political effects (Gee, 1990). Given the effect of ongoing social change, and particularly globalisation and detraditionalisation, such community or network formation increasingly occurs outside existing institutional structures and boundaries within civil society. Groups coalesce and make themselves felt as legitimising and resistance identities and, increasingly, as project identities or 'new social movements'.

Touraine (1981) argues that groups pursue legitimising, resistance or transformative political projects in order to clarify and articulate their name, identity and interests within and against existing social conditions. This struggle for identity is part of a larger scale politics around 'historicity', that is the struggle over 'the great cultural orientations by which a society's ... relationships are normatively organised' (p.26). In this respect, society is an outcome of social movement or the 'conflictual production of itself' (p. 77). Theorising social movement involves actors positioning themselves around 'political projects' which rest upon (a) an actor's sense of identity, membership or alignment with particular social forces; (b) their implicit or explicit recognition of an opposition or antagonist who does not share these commitments; and (c) their explicit or implicit sense of what is at stake in this cultural politics (Touraine, 1981: 81). Working with movement activists revealed that any movement that relied heavily on utopian thinking or rejectionism and refusal would be likely to fail. Touraine concluded that the rise and fall of social movements reflects their positioning on a scale of project levels:

> ... in every situation there is a maximum of possible historical action. If the organised action falls below the maximum it is filled out and overcome by wildcat movements. If it is situated above the maximum it is threatened by excess Utopia (Touraine, 1981:**)

As Modra (Modra,) clarifies,

> The 'project level' of a group refers to its ability to analyse and articulate in whose name its struggles are waged, who its opponents really are, and what is at stake in the struggles and its capacity to integrate this awareness into a counter-project which transcends the pitfalls of alienation, co-option, mere refusal or excess utopianism (p. 280).

My point here is that a political analysis would contextualise capacity-building within the contemporary confrontation of neo-liberal globalisation and traditional national structures and cultures. This socio-cultural confrontation fuels community/network formation in which identity-building goes hand in hand with more, or less, explicit political projects that are directed towards legitimation, resistance or transformation. The implication is that a certain level of 'tribal' recognition, the delineation of us and them, is helpful in forging groups and networks with shared moral commitments and political projects but their social and political impact is constrained by both the overdevelopment of tribalism and the underdevelopment of political activism within the prevailing contexts.

From this perspective, capacity-building becomes a political project driven by groups who seek to reposition themselves within the prevailing politics of legitimising modernisation and resistant retraditionalisation (ie. globalisers and localisers). Capacity building is not a generic phenomenon (as the functionalists suggest) but carefully contextualised practices that constitute social movement. The scope and character of capacity-building strategies is determined in relation to: the contextual opportunities and constraints -- windows of opportunity which open and close; the group's strategic assessment of their own development, the perceived opposition and the definition of stakes in the struggle; and the group's capacity to engage in cultural production which clarifies and advances the reach of this project identity in ever wider and more organised social coalitions.

'Pedagogy' - or the orchestration of contexts for capacity-building

Learning is central to capacity-building. It provides the basis for building cultural identifications and shared meanings, and it is essential in the development of conceptual frameworks that permit strategic assessment, measured judgement, creative design and innovation. Such expansive, 'generative' (Senge, 1990) or 'transformative' (Connell, 1995) learning is fundamental to the continuous change (Senge, 1990) and 'enterprise' (Castells, 1998) required for sustainable social movement in both economy (eg. productive and profitable companies) and society (productive and sustainable communities). It depends, in Lusted's (1986) terms, on a carefully orchestrated 'pedagogy' of learning. Lusted emphasises that 'pedagogy' is the process through which knowledge is produced, transmitted or reproduced as a means to learning. As Lusted elaborates, the challenge of developing a pedagogy of learning requires us to become conscious

> ... of the conditions which produce, negotiate, transform, realise and return [knowledge] in practice [ie. learning]. What pedagogy addresses is the process of production and exchange in this cycle, the transformation of consciousness that takes place in the interaction of three agencies - the teacher, the learner and the knowledge they together produce (Lusted, 1986: 2).

As he stresses, learning is not a consequence of any one of these agencies by themselves but an outcome of their interactive effects which serve to 'co-produce' knowledge and other cultural productions (Connell, 1995). This conception of cultural co-production

> refuses any tendency to instrumentalise the relations [between agencies], to disconnect their interactivity, it denies notions of the teacher as functionary (neutral transmitter of

> knowledge as well as 'state functionary'), the learner as 'empty vessel' or passive respondent, knowledge as immutable material to impart. Instead it foregrounds exchange between and over the categories, it recognises the productivity of the relations, and it renders the parties within them as active, changing and changeable agencies (p. 2-3).

The knowledge transactions that constitute learning are orchestrated through the purposeful design and realisation of pedagogy. It is a distinct form of work which entails the careful construction of pedagogic contexts, relations and processes that not only facilitate learning but are embedded within particular groups and networks (Connell, 1985). Pedagogy is inevitably political because it's orchestration of knowledge transactions is always an intervention into processes of individual and collective cultural formation. Its contribution to advancing identity-building depends upon developing 'noise-free' knowledge transactions and this is always easier when there are cultural identifications between learning parties (eg. teacher and student). It is well know that learning is facilitated when pedagogy is framed within and enabled by cultural affiliations (eg. Connell *et al.*, 1982). Similarly, learning is curtailed when cultural dissonance, or preoccupations with social control, reorient pedagogic work towards the restriction and regulation of knowledge transactions.

Contemporary education and training is caught in the cross-fire between deregulatory modernisers who seek to legitimise reform and resistant retraditionalisers who seek to reassert neo-conservative or older social democratic forms of social organisation. But increasingly, practitioners are stepping outside these conventional structures for political action and are re-exploring pedagogy that sustains learning in new times. Such work is legitimised by the current rhetoric of continuous improvement, flexibility, lifelong learning and learning organisation but is frequently in tension with both market/choice and bureaucratic educational practices. The destabilisation of traditional institutional structures and boundaries permit (and sometimes encourage) the growth of less formal educational arrangements and networks which, in turn, encourages educational practices which build on and consolidate a diversity of cultural affiliations and identity movements. Such educational practices are often highly effective because they are more 'noise-free' and establish greater connection between learning parties than occurred in bureaucratic educational provision (Connell *et al.*, 1982). But, as with all identity movements, they can be legitimising, reactionary or transformative. The character and direction of these capacity-building strategies depend upon the regulatory contexts, cultural affiliations and capacities for cultural production of the learning parties involved.

In summary, I have argued that a conflict perspective extends the preliminary insights of functionalist theorising which presents capacity-building as dependent on work practices oriented to learning, suppportive infrastructure and moral commitments to making a difference by moving beyond dependence on systems metaphors which encourage a decontextualised, depoliticised and adirectional analysis. By contrast, a conflict perspective permits a sharp contextualisation of capacity-building within the distinctive social dynamics of our times and reveal the significance of contemporary identity politics in energising and driving innovation in and beyond education. Capacity-building is an expression of these broad social processes which makes learning, and the pedagogy that sustains learning, part of explicit political projects oriented variously towards building legitimising, resistant or transformative identity-building and social movement. However, capacity-building in education and training has a particular framing, being constituted at the intersection of deregulatory and individualising neo-liberal reform, traditional universalistic public sector commitments and practices, and transformative agendas pursued by new and old social movements working through education. In the next section, I consider the character of capacity-building in a small private training provider in Melbourne with a view to substantiating the conceptualisation developed here and investigating the way the different identity dynamics were resolved.

Capacity-building at the RTO

Capacity-building practices at the registered training organisation (RTO) were investigated through a small case study which aimed to develop better understandings of these innovative educational practices. The project was conducted in cooperation with the registered training organisation RTO, the case study site. This cooperative relationships permitted a co-production of knowledge between the principal researchers from Monash University and staff at the RTO. The case study entailed intensive data collection over a period of 5-6 days coupled with more informal dialogue over 12 months. During intensive data collection, the researchers engaged in informal conversations with staff, conducted nine formal interviews with selected individuals, conducted a focus group to test out preliminary analyses and attended a staff development day as observers. On the basis of these sources of data, together with documentary sources, a profile of the RTO and a more detailed analysis of the work practices and work organisation that sustained capacity building was developed.

The RTO is a private company providing workplace training. It is owned and operated by its directors and staff. The company operates within the context of the Victorian system of vocational education and training that sets the criteria which Registered Training Organisations are required to meet. Its income is derived from state government funding, channelled through the Office of Training and Further Education, and from private industry training contracts. The proportion of public to private funding for the 1998-1999 financial year was 70 percent.

The RTO was established as a private training company in 1994 and started operation in 1995. Its main business is the design, development and implementation of industry-based training programs, initially in the automotive industry but later in local government, food, transport and storage, and light manufacturing. The hallmark of the company is its distinctive approach to training. The RTO designs and delivers 'integrated training' that is enterprise-specific and which provides an holistic and integrated contextualised program for learning. It also offers professional development activities for staff in Technical and Further Education (TAFE) Institutes and universities. The company also has a commitment to research which it realises through its commitment to reflecting on and documenting its practice with a view to developing grounded theory.

The organisational structure of the RTO is flat. There are two directors each with designated responsibilities, a further 8 teaching staff, most of whom work parttime and three office staff. The two directors, another manager with designated responsibilities and two office staff make up the management team. Consultants are employed on an occasional basis in specific projects. The company has also developed good relationships with a wide network of individuals and agencies which provide further support, advice, partnerships and contracted assistance in various contexts. While directors have formal designations, there is considerable movement between teaching and managing roles which is governed by the strengths and expertise of different individuals. It means that while staff recognise that there is a 'boss', they turn to individuals with specialist expertise when they need advice or assistance. This specialist expertise is acknowledged in job designations but is also known informally through close interpersonal relationships. The staff have developed these relationships and ways of working because of their shared philosophy of adult education and their expertise as reflective practitioners. The company further affirms individual expertise by actively encouraging a learning culture in the workplace by organising regular staff development days, encouraging staff to reflect and write about their work, and supporting staff to undertake further study. Almost half the teaching and managing staff have, or are working for, Masters (2) or Doctoral (3) degrees.

The RTO's business approach was described by one director as 'applied adult education' (Robert). Its fundamental aim is the promotion of a more effective learning culture within client organisations and in other partner organisations. The company believes that learning within the workplace should be easier, richer and more effective after the RTO's involvement than it was before. Staff emphasise that this kind of training outcome depends significantly on their capacity to build effective relationships within each client organisation. This approach to training is driven by an educational philosophy which has developed through various projects in which the directors and staff have been involved. The company's induction manual emphasises the commitment to 'developing context-based learning experiences and activities in each site' and indicates 'a resistance to the idea that effective learning activities and training can be pre-formulated and imported into a client organisation. These commitments are spelt out as a set of guiding principles in the RTO's induction handbook which assert: the importance of input from people at all levels in a company, not just managers; the significance of forging good relationships within each training site; the creating within workplaces of a learning culture which empowers employees to deal with change; the need for workers/trainees to have some stake in the design and delivery of training; and an understanding that it is in the interests of all members of client organisations that training be holistic, contextualised and linked to the wider social context in which organisations function. This means that the RTO expects workplaces to be clean and safe, and to have a climate which is respectful, tolerant and non-discriminatory. The idea that the RTO 'made a difference' in the lives of individual employees or in a company was an explicit value commitment at the RTO and was also built into its work practices. This moral position provided an institutional endorsement of the value of learning and the work of the RTO in supporting learning. This normative framework legitimated staff commitment to learning and helped to explain the intensity and passion with which they pursued their work.

The passion of pedagogy

Rosa provides insights into the work of workplace training but also reveals the passion of her engagement. She was openly committed to making a difference to the work and lives of those worker-learners with whom she engaged. She related a story to capture her experience of this vivid work in a training program:

> I pushed a group of people in the warehouse. I pushed them and pushed them about communication and - just the work in the class and we talked about being a proactive person and approaching people when you've got problems. And I pushed them and I pushed them and I pushed them really hard, knowing they could take this. I came in one day and they said, 'Oh, we need to have a meeting in class first'. I said, 'Why?' 'Well, we had a meeting at lunchtime and we'd like to talk to you about X'. Do you think I was blown away! Because they'd finally put into practice all this stuff we'd been talking about. How they can actually coordinate organised meetings. If they have a problem, how they can choose a leader. How they can approach a person, what communication strategies they would use. And they turned around and fed back to me everything we'd been talking about. And they thought I'd be really upset because I was going to say that, you know, we're all working hard and they wanted an extra break. But I just sat there with the biggest smile on my face and said 'Oh this is fantastic, oh this is great...' And they were just astounded because it was such a *buzz*!

As Phillipa says, this experience was a buzz because 'it was everything you'd done, and they'd returned it back to you the way you'd shown them how to do it' They had learned what Phillipa had been trying to teach them and, in taking the initiative to communicate with her, they had demonstrated their learning and their empowerment. But importantly too, the buzz was for Phillipa as much as the trainees. Pursuing learning as empowerment provides benefits and pleasures both for those who learn and those who support learning. She explains that her metaphor for supporting learning is of hacking through the jungle with a machete in order to reveal the knowledge that exists. Her work as a trainer was

> ...not about teaching people things. ... If I was teaching ESL students and I'm teaching them English, it is about teaching them English and helping them find English. But in the workplace most people you're working with have all the knowledge. They just don't know they have the knowledge. So the teacher in a VET area is about facilitating their way through the jungle. So its the jungle [of knowledge] in their own mind, that [they] have but [they] don't realise - and it's where can [they] find more knowledge in this organisation. And we've cut a pathway, you know. You get the machete out and you go and speak to this person, say 'Can you come and speak to my group?' So you sort of facilitate their learning and the information is there.

Rosa acknowledged that there were times when you brought new things in -- new understandings and information -- but she sees it largely as

> .. clearing out the debris. So often these people have so much happening in the workplace and they're set to times ... they don't stop and think about what they do. They just do. So its clearing out all that excess stuff and saying, Let's get down to what it is you actually do and why and why' Why is the question. We can talk about what they do till the cows come home but when you talk about why you do it this way, is there a better way? What are the implications of what you do? So they start sifting, sorting through all that undergrowth to work out what is the most important bits. What are the plants I need to nurture and what's the stuff that can be chopped out? ... They have the ability to say, 'Well now, now I understand this bit, I've got to go out and look at my own workplace and start culling'. And that's what they do when they do workplace projects. To work out what's a better way to do this.

What drives this vigorous activity is a deep-seated concern with social justice. Rosa described her family sitting around the kitchen table discussing politics and her realisation that formal party politics was a poor context for really tackling injustice. Her involvement in workplace training provided a context for continuing this struggle for social justice

> What do I find important? I'm a firm believer in justice. I'm a firm believer in equality and justice. Everyone has a right to be treated equally and fairly and right. I have I suppose what you'd call small 's' socialist principles. I don't see myself running around with a red flag but I believe that everyone has the right to be treated fairly and I hate injustice and I hate, hate bullies. I will confront a bully any day. I cannot stand bullying because most bullies, when they get some pressure back, give way. And I hate bullies ... Some of the people we come across in industry are bullies and you've got to find ways to work around them. (Rosa)

Rosa's passionate description could be captured in the bland functionalist categories of 'knowledge utilisation' and 'moral purpose' but these notions fail to grasp the intensity of Rosa's engagement in pedagogical work or the depth of the political commitment to those she sees as less fortunate than herself that she realises through her work. These categories also fail to capture the complexity of the work.

Learning depends on relationship-building

As other staff at the RTO confirmed, what goes on in workplace training is much more than a simple teaching-learning relationship with the worker learners. They emphasise that their workplace training is fundamentally about relationship-building - with learners, managers, unions, industry representatives, other workers at the plant and with other training and development professionals. As Terry notes, the challenge is to build a network of relationships in which the trainer is experienced as an authentic and trustworthy party:

> You teach who you are and what you are. What you are is what comes across. ... Your being the way you are, the way you approach people, your character - that is what determines whether people hook into things, decide that what you are saying is interesting, you know. ...what I believe is, first and foremost, you must establish those relationships and establish a relationship of trust... all of those things that build people's strong relationships. The process of developing that can be around different sorts of contexts, working together. Only time will establish that relationship so that you can have the potential to have more impact in the area because of the relationships you've created. I think, if you can create those kinds of relationships and you know that, that's when the dynamism starts, people start to work together.

These relationships in which the trainer is him/herself is the foundation for all the rest: for seeing what is possible; thinking in terms of learning; producing outcomes and monitoring quality. Good training depends upon a set of dispositions embodied by the trainer as much as the structural arrangements which shape the learning site. These disposition include an empathy with the learner, care, humility. As Nigel commented, he had seen some trainers from other organisations who 'believe that they are coming in with a carpet bag of knowledge and expertise, that they are going to eat in front of the class and vomit over everyone, and that's going to be absorbed'. But as Terry noted, in learning contexts, humility is about being honest because people have a lot invested in their learning. Learning is really important to that learner. He continued:

> some people play 'Gods', you know. They put themselves in a situation where they say or sometimes we think they can do anything, or we allow them or we give over certain powers, 'Godlike' powers to them. You know the sorts of things (laughs). And I certainly did not want to be a god, or an expert, because I knew I wasn't. I had some information and I wanted to make that clear to them but I wanted to be perfectly honest, that you don't give people false hopes...

Good relationships are rooted in culture and power

These dispositions that make the trainer who s/he is and which learners and other stakeholders 'hook into' as a basis for productive learning are not just personality traits. As the RTO staff made very clear, these linkages are cultural. The hooks that enabled the establishment of productive learning relationships were deeply rooted in trainer's personal biographies, in experiences with family, friends and close communities. Terry talked of his familiarity with the factories he worked in:

> I grew up in factories. The smell of the grease, the smell of the wood, the noises, the people, they're the way the smell (laugh) all that sort of stuff. That's all part of me. So I can walk into these places and it's like walking into home. ... You know, my Dad's overalls smelled like that. So that is the level of knowledge that you've got that you kind of unconsciously draw upon. Helps make you feel ok when you get in there.

But their education had also been important as a source of informal rather than formal learnings. Terry described being an English-speaker in multilingual school and the way this experience required him to become skilled at talking across cultural boundaries. He learned ways of talking, as well as picking up Maltese, German and Polish from his friends. Belle emphasised that her Catholic schooling had given her a sensitivity to class divisions and the arbitrary exercise of power:

> I guess, I never really felt as if I had a legitimate right to be [at the school] because I came from a migrant family, though I'm third generation, my family were sort of fruiterers and I went to a school where parents were professionals. So I was always oscillating between a sort of sense of injustice and exclusion and inclusion. Where the borderlines were and how one got to be on one side and how one got to be on the other side. ... I remember feeling quite angry about my education for many years, the rules being so clearly defined and yet so irrational and so clearly indicating an attempt to protect a certain set of ideas, knowledge, information and gate passes.

Learning relations acknowledge them and us

These lived experiences provided the cultural basis for the relationship-building that hooked learners and trainers into empathetic, mutually caring relationships that sustained productive learning. But these experiences also meant that the trainers recognised the way power and being political was implicated in effective relationship building.

As teachers and managers, the RTO staff knew, from lived experience, that pedagogy in the workplace is never a neutral knowledge transaction. Workplaces are always politically charged, with sharp inequalities and systematic patterns of inclusion and exclusion. These enduring structures of power mean that the question of who wins and who looses is always fundamental, even in seemingly harmonious day-to-day relations between workers and managers. When there is no neutral ground, pedagogy becomes a form of practical politics, an intervention in prevailing relations of possession/dispossession and advantage and disadvantage which must always be attentive to winners and losers.

As Nigel noted, the distinctiveness of the RTO's work practices lay in commitments to social justice, mental awareness and awareness of the constructed environment that we all live within. He continued:

> ... that's fundamentally what the RTO is about and certainly most of the people who work here, that's what drives them but also their interest in engaging people in their industrial settings. ... I'm not saying that there's any diminshment of, if you like, believing that they're actually here to run a commercially viable business, that's still quite apparent. But ... they [see their] role in also developing the students in terms of their structure and political awareness of the work environment.

What Nigel describes as the fundamental and distinctive feature of the RTO's work is a complex set of interconnections between purpose, pedagogy, politics and passion which is realised in distinctive and quite specific constructed environments - workplaces in particular industry settings. Terry put it more simply, making explicit the deeply rooted cultural connections that hook trainers and worker-learners together in effective learning relationships. He said, that the RTO 'has an historical and philosophical bent towards a particular group of people, ... a leaning towards the workers rather than the management'. Tricia, the CEO, confirmed this point, saying that she had worked to build up the RTO with a view to getting 'the best possible deal for the workers' She pursued this goal by finding the best teachers and then selecting staff who, while not being clones, shared 'a commitment to the workers as clients rather than the bosses'.

Managing the politics to enable learning

The staff's recognition of the structures of power within pedagogy made them sharply aware of workplace politics and reflective about their complicity within workplace power relations in their work as trainers. They approached workplace training contracts with a clear awareness that the training they provided and their presence in the workplace was effectively an intervention within the prevailing power relations. It always ran the risk of being co-opted by either management or the workers. Either forms of co-option undercut the capacity of the RTO to sustain effective relationships and to ensure productive learning.

Terry illustrated this kind of risk by describing a workplace where he was contracted to work with frontline managers (ie. first level team leaders and group leaders) but management wanted him to develop an assessment process as well as conducting training. He recalls becoming increasingly concerned about the way he was being used by management in ways which potentially threatened the workers, the training and his own integrity as a trainer:

> I was asked to develop the parameters for that assessment - the competencies that were going to be assessed and perhaps how they would be assessed - without any notion of how these services are going to be used. Do people actually agree with these things? I was very concerned about that and basically had to organise a steering committee meeting so that enough people would be there, stakeholders would be there to say, 'Hang on, do we really need a process, or everyone needs to see it'. I was afraid that [the assessment] would just be taken and run away with and used in some way that I wouldn't have any control over but would be responsible for. ... I came back to my project manager and said, 'I'm worried about this. Can you pull in some people like, can you pull in union people so that we can engineer a steering committee so that they will know about this assessment and can have their input into the process. So everyone knew and I wasn't feeling like I would adversely effect one group of people, and possibly disadvantage the whole lot, because they don't understand the import of what's going on. I just wanted something to happen where they all talked about it... That was done, so I feel happy about that now. At least they will control the process rather than me just inventing something and people -- because I've seen that happen in the past. You can be used to do that and you will also cop the shit afterwards if something goes wrong.

Terry's strategy for dealing with this potential co-option was to open up dialogue in the workplace about the assessment scheme so that management, workers and their unions would be able to resolve issues as the process developed. Importantly, supporting learning did not mean ignoring workplace politics but rather using established processes for conflict resolution in the workplace to defuse the issue. This was a one-off strategy to deal with a particular problem in training provision but the RTO had also developed a series of systematic strategies for managing the politics of the workplaces in which they were contracted to provide training.

On signing any training contract, the RTO negotiated that the trainer should have a period of time before training commenced during which they could familiarise themselves with the workplace. This meant that the time and resources for building relationships with client organisations was built into training contracts as an explicit process of 'immersion'. The RTO insisted that before teachers could design and deliver training, they had to have time to get to know the client organisation. The contract stipulated that the trainer should have access to and opportunities to talk with people at all levels of the company, rather than being cocooned with managers or personnel departments. This period of immersion enabled staff to develop an informed sense of how the workplace fitted together, how it all worked and what everybody did. It meant that when trainers brought their technical expertise to a training contract, it was mediated by the culture and power relations of the workplace itself. This enabled the trainers to better harness their technical expertise to the specific workplace so that knowledge became situated because it was acquired and adapted on-site and with the learners.

There was a clear recognition in the RTO that the work of the trainer was different to that of the manager, and that the crucial work of immersion and of building strong teaching and learning relationships within client organisations had to be protected and supported once the initial contract had been signed. Rosa, who worked as both a trainer and manager, explained:

> When you're a trainer you're very much doing a job for [the trainees] and trying to keep them all happy and trying to keep your trainees, in a sense, safe from some of the other stuff that's going on ... and that's what teachers do, you try and keep a nice safe - safe but challenging environment ...As a manager you have to be far more pragmatic, you have to be far more - trying to think of a word - cocooning and encompassing. Its about listening - it's a lot more listening about what these people want from a management point of view. Its about being - its about being pragmatic, that's it, it's being a manager - its about being pragmatic. It's being able to see both sides - all sides of the issues. As a trainer all you see is the educational issues and that's what you are there for. As a manager you have to see the educational issues, you have to see the financial issues, you have to see the industrial issues, you have to see all of those things and find a ground where they're comfortable. And sometimes you mightn't be - it might be too far away from education than you really like but, if you agree here, you'll try to set an agenda for the teacher to work in the educational paradigm in a sense. So [management] is about balancing roles, its about balancing hats and its about being pragmatic in the long term in the way to keep that person training most comfortable and secure because that's your role. Because when you're out there [training] you really want someone who will manage the project to keep you away from that stuff as much as possible.

The RTO used a quasi-contractual project brief negotiated by a designated project manager to protect the trainer from the sometimes prickly work of maintaining a space for training in the client workplace. Each teacher working on-site in a client organisation was supported by one of the managers and it was the managers that did the sometimes difficult work of negotiating the scope of a training contract, its cost and the workplace requirements necessary to support the training. The managing director explained:

> Between the three of us (managers) we [take] a project management role on every project that's run. As well as the on-site trainer, one of the three of us goes to the meetings held on-site, as project manager. That's because we believe there are two roles to be played on the site project management committees. One is a management role and the other is the project officer. If the project officer has to play both of those roles they find

> themselves in the position where they're having to do tough negotiations as well as being warm supportive people. As trainers they need to be able to get on with everybody, whereas we can go in as managers and take the tough line if we need to. So if the project officer is not getting a fair go in a particular enterprise and they're not being given access to the people or to the line or workshop floor or anything, we can say, Well, that has to stop. The project brief states that they will have this access and basically they've got to have it (Tricia).

The kind of organisational support within the RTO was, itself, supported by the broader infrastructure provided by recent training reform. In particular, the trend to contractualist arrangements within Victorian public administration (Alford and O'Neil, 1995) provided the RTO with a way of working and relating to businesses which put them on an equal footing. The contractualist environment legitimated the RTO's assertion of their position within the contract of training and their use of quasi-contractual mechanisms, such as the project brief, to lever necessary conditions for training within workplaces. This included having access to relevant staff at all levels of the client organisation and, building on the corporatist history of training reform in Australia, establishing steering committees to oversee training contracts with membership drawn from unions and well as management. The availability of public funding to support microeconomic reform has clearly also been important, providing a financial buffer which has permitted the development of the RTO's distinctive work practices.

As these strategies for managing the politics of workplaces suggest, the contractualist environment enabled the RTO to adopt a third party position within workplace relations. Terry makes the point, noting that while the RTO was committed to supporting workers,

> it is, in fact, management who are allowing the RTO in to run our programs. So there's the RTO in there with an agenda that it wants to do the best by those workers. Now that particular view may not necessarily be in the interests of - what I would like and what management wants may be two different things. How do you supply something which meets your personal needs, meets workers needs and meets management's requirements? Being subversive or dishonest? Or trying to find a middle way?

As a commercial company, the RTO could not simply take sides in workplace politics. The financial viability of the RTO depended upon meeting management demands sufficiently so that they were paid for doing the training. Training that takes sides on a simplistic workerist basis is unsustainable. As Nigel says, doing industry training is like juggling balls in the air:

> ... you're juggling the values of the different groups [in the workplace] and those values, and how they are expressed, are quite different. Each group has different objectives, like the union has a different objective about what they want their members to get from training and the people in training themselves have changing views about what they want out of training. Then the various people in the management structure of the company have different outcomes from training and so on. So your trying to juggle all these things and keep them smoothly in the air and not drop anyone. You've got to keep everyone happy.

This third party position can only be sustained and legitimated within the training context if the RTO and its staff maintain some independence from both management and workers/unions, and act as advocates on behalf of training. Nigel illustrates this difficult mediating role in a workplace training situation in which one of the men he had been teaching had taken up an industrial issue on behalf of the other worker-learners. Nigel explained that in the context of the workplace, he wanted to support his trainee but could not be seen to be partisan. So he opened up the issue for dialogue but in ways which would advance training in that workplace. The trainee was arguing that the company should pay workers for the time they spend in training. Nigel became involved in the negotiations with the trainees, the production supervisor and the senior shop steward. Everyone knew that the trainees were trying to get a pay outcome and they also knew that this was an industrial issue which would not be achieved,

> .. because [the agreement about pay and training has] been written into stone ... So [as a trainer] you are balancing off against those things and, I guess, what I'm trying to do is draft the next stage of training, to negotiate time and space for [the trainees] and within that, there is another set of nested objectives which is to negotiate this training time - this on-the-job training time - to make it ingrained in their culture. So that training becomes more a part of their work because, in six months time, I won't be there to fight on their behalf [and] to say, look, we want to negotiate on their behalf for on-the-job training time. Off-the-job training time is much easier to obtain perhaps because we're moving people out from the workplace and into a classroom, and its given some sort of legitimacy that way. But the long term objective I'm looking for, and this works hand in hand with teaching the guys to teach themselves and be aware of that process, is to politically negotiate that time for them. And this is also built upon having negotiated this position of an on-the-job trainer. So there's a whole series of agendas that relate to short, medium and longer term outcomes.

The trainer, then, does not have to take sides in the local workplace politics but can pursue longer term agendas which will advance training and the development of a learning culture in the workplace. This means advancing learning not only for workers but also for managers. It highlights another contradiction in the RTO's work. They are contracted to provide particularistic training within private workplaces but the context, the company's viability and their own dispositions lead them to advance training as a universalistic benefit.

Gemma, one of the office staff, nicely captured this contradictory positioning saying, 'there's politics in every workplace ... but I guess professionalism is what Tricia (the CEO) taught me'. This professionalism recognised that good learning relationships depended upon an empathy, mutual respect and care that was deeply rooted in cultural and political identification but sought to manage the inevitable them-us politics in ways which ensured that the RTO met client companies demands and so, ensured the RTO's economic viability.

Living these contradictions on a day to day basis, made the staff highly reflective about the power they wielded in workplace and learning relations and, therefore, the character and ethics of their educational practice. Like doctors Hippocratic Oath, they embodied the principle of 'first, do no harm'. Their second priority was to try to make a difference to the work and lives of participants in client workplaces but this principle was tempered by the universalistic ethic which insisted that learning (and hence training) could only be advanced if it benefited all stakeholders and did not visibly serve sectional or partisan interests. Reconciling the particularistic interests of the trainees, with whom the trainers developed their closest and most fundamental relationships, with the particular interests of other stakeholders presented challenges which were most commonly resolved by taking a long view on the universalistic benefits of training, albeit framed by the training contract governing the RTO's relationship with particular client companies. Clearly, this issue of universalistic public good in the context of particularistic private workplaces is a further contradiction in the RTO's work.

Public goods for private benefits; private goods for public benefit

The universalistic orientation of the RTO and its staff was reconciled with their particularistic work in private training contracts through strategies aimed at carefully managing themselves and the RTO's public and private face. The effect was to turn particularistic private benefits developed through specific workplace training contracts into more widely available public goods. This was achieved through three key strategies: endorsing a longterm commitment to training and its public benefits as a resource for both the staff and like-minded individuals and agencies; carefully managing the public and private face of the organisation so as to protect the core values which the RTO embodied; and using the RTO's enviable record in workplace training as basis for publicising, promoting and defining good practice in workplace education amongst wider stakeholders and communities.

The RTO was explicit about its long term commitment to training and emphasised the benefits of learning as a public good in all their work. Rosa put it this way:

> I believe we're not just working for us, we're working for the people we're training and we're working for a whole pile of things. So apart from being here to make money, its also about making things better for various people that are the shopfloor workers or they're managers or they're parents in a school canteen. And its not about doing it for them, it's about helping them to get there.

To some extent this longterm public view of what the RTO was about was a defensive mechanism. As one of the managers noted, in some training contracts the workplace politics are so difficult all you can do is try to survive. But the longterm view also served as an ideal to strive for and as a set of principles to guide the day-to-day working of the organisation. As Tricia said, holding onto this ideal meant that 'you don't feel as if you are trapped in a negative world. You know that it can be better'.

There is a pragmatism here which tempers the idealism of much educational practice with its commitment to making a difference in an unequal society. Tricia, the CEO, developed this position further, emphasising that educational ideals,

> ... what ought to be out there, is not going to happen until we have a different kind of society. I understand that ... We can't change it in the training room, in the classroom. That to me is a very empowering notion. I think there's lots of things we can do in the classroom but changing society is not one of them. As long as you know that then you know you're trapped within the system that is never going to be ideal -- even in the best of our places. So you retain a critique of even our most productive learning workplaces because it is never ideal. Your ideal is really only going to happen in a different kind of society altogether. So I never expected the ideal [to be real].

The sharing of this ideal amongst staff within the RTO was also important. It defined their collective identity and common culture, and provided a basis for establishing close and supportive collegial relationships. As Robert commented, the RTO provided a context, a private space, within which the shared values could not only be lived on a day-to-day basis but could also protected, renewed and endorsed. The RTO served as a values repository not just for the staff but also for others in the training industry and beyond. The RTO sustained considerable networks with like-minded individuals and organisations, and resourced staff development activities that consolidated and refined these shared values. The managers saw such protection of values as important in the prevailing economic rationalist environment. Robert saw the RTO building values in action which underpinned capacities

> for building a better world, ie. the capacity is oriented to an end. And I think that all the staff can see that the world could be a better place than it is. All the New Right stuff has meant that it is very hard to find a way of talking about values. The traditional norms have been delegitimised. If we espouse those old values explicitly we are seen as being beyond the pale. This de-norming is so profound that we seem to have become alienated from our moral positions.

But while the RTO staff endorsed these collective values they were sharply aware that they could not always disclose them in public contexts. Robert recalled writing poems and then being unwilling to recite them because of the potential cost to the business:

> I was at a seminar on changing patterns of work. I decided to read my poem about casualisation and contracts but my heart was in my mouth because it exposed values and I didn't know how the people there would take them. I write poems and then don't read them ... there are real commercial constraints.

This example illustrates the way the RTO both as staff and as an organisation engaged in complex management of their public and private selves, and also the way the organisation provided a private space within which there could be a public affirmation of traditional values. Robert described this as the RTO's 'myth within a myth'. The RTO's public face -- of ISO, best practice, corporate image and competent performance -- coexisted with an inner myth about the way RTO does things and why they do the things they do. This always presented dilemmas associated with disclosure. Who should be given access to the inner myth? What will the costs and benefits of disclosure be? As Robert commented, writing poems and then not reading them publicly was a kind of lie but disclosure could have an impact on the business. As he noted, 'It is not in anyone's interest for our facade to be cracked. If it is cracked it will weaken the organisation and the politics we represent'.

To some extent, Robert's comment is an illustration of the strangely alienated moral environment that exists in education and training at the turn of the century. The RTO was distinctive because it was committed to building close filial learning relationships with trainees while tempering this cultural identification with a restrained professionalism oriented to realising universal benefits. In many respects this was a traditional public sector ethos, albeit embodied within a private training organisation. While staff described themselves as 'system people' who had long worked within the public sector and were comfortable with universalistic public values, they were unable to name and claim this moral position in the contemporary training market. Indeed, in this environment their work was doubly valorised, being high quality training and being conducted by a private training organisation. But this double valorisation also provided an opportunity for extending their publicly oriented work in private workplaces in order to generate more widely available public benefits.

With an enviable record in high quality and highly effective workplace training, the RTO was in a good position to publicise the work practices that underpinned its training success. This began at the local level. Managers negotiated training contracts with client companies and actively pushed managers towards quality training. Negotiating the frame of reference within which the training would occur consolidated learning relationships with the clients and, sometimes, changed the way the company thought about training in its overall operations. As Terry commented, managers can learn to do things differently by seeing the way the training is done:

> I believe we have to be honest and transparent in what we're doing. Sometimes its difficult for people to understand what outcomes they actually want and the ways of achieving them. They may have a different view about how they could achieve them but, it is our responsibility to gradually show people that there are other outcomes possible, other desirable outcomes that they might go for and there are other ways that they might achieve them. You know, processes of collaboration and inclusion. Maybe once [these processes] were unknown to them or they are uncomfortable with them. They may not like those sorts of processes, but we may be able to introduce them to those processes and use those processes in the learning to achieve particular outcomes. Because they're looking, they're watching.

Publicity of the RTO's work extended well beyond negotiating training contracts. Staff wrote articles for journals and presented reflective papers which described and theorised their work at conferences. They conducted research which provided evidence to justify their practices and networked extensively. They sought endorsement of their work from authorities within the training industry on the grounds that winning awards helped to institutionalise particular ways of doing training -- their ways of doing training -- as systemwide models of best practice. As Rosa put it,

> I think we try and push the comfort zones from the system point of view as much as we can. Because you can sit there and have it done to you or you can .. get there and do it and hopefully, move, move the fences. And I see that as or role, that we try and move the fences I think. We just push them. Yeah, just push them out slowly .. but at the same time you can't challenge the system so much that you are a heretic and they don't want to know you and you get on people's nerves and under their skin. It's just about slowly pushing those boundaries and talking and things like the Best Practice project. It was a way to say what we do is worthwhile and to get validated by the powers that be, and when they validate you that means they've moved the fence.

All this publicity helped to make the RTO's private experience of training in private workplaces available to wider publics -- other companies, other training providers, the training system, industry and government. It transformed the private benefits arising from particular training contracts and accruing to particular workplaces into public benefits. 'Moving the fence' in terms of the system's notion of what counts as good practice was also a direct public benefit which spun off the private training. While the RTO did not openly proclaim public values, the staff continually demonstrated the kind of care, commitment to learning and principled universalism which has long been associated with traditional public values. Such demonstrations had added impact because these public values were being endorsed by a private company, and this disaggregated public values from the funding arrangements and bureaucratic organisation that is sometimes used to define and discount public enterprises. While the RTO's symbolised private enterprise and could therefore be seen as implicated in the ongoing denigration of public education, publicity of its training success provided opportunities for publicly re-endorsing the importance of their values and educational practices. Simultaneously such publicity served the public interest which is about re-enabling good educational practice and opportunities for effective learning in the community at large.

The challenges of capacity-building

Functionalist perspectives provide a way of conceptualising the RTO as a capacity-building organisation. The organisation had distinctive organisational and work practices, had an infrastructure that sustains the relationship-building which was fundamental to its mode of working, and was imbued with moral purposes about the importance of making a difference through learning. Yet somehow these features of the RTO did not capture its critical features: Its passionate commitment to learners and learning; its strategic creativity in orchestrating learning and its sophisticated negotiation of contradictions rooted in both localised and big picture politics of education and training.

The conflict perspective developed in this paper offers a more provocative basis for theorising these distinctive features. It is provocative because the analysis highlights some of the dangers of recent education reforms in refuelling and sustaining various forms of tribalism. The affirmation of cultural affiliation contributes productively to learning efficacy, but it can spin out in many directions with both beneficial and damaging social consequences. As Beem (1999) argues, institutions that build social capital, like the family, religion and education, contribute to tribalism as much as tolerant social participation. The latter can only be guaranteed when the state intervenes in society to constrain parochialism and intolerance in the common interest. Education has a part to play in community building and in enhancing learning, on a lifelong basis, so as enable individual and collective opportunity in rapidly changing social and economic environment. In these respects, education and educators must encourage cultural affiliations to promote productive relationship-building and identity-formation. But the cultural affiliations that education can so successfully develop and sustain must be developed in tandem with universalistic agenda that promote tolerant social cooperation and belonging that accommodates difference.

It is important to note that educators at this small private training provider did manage these complex social demands, building on their own capacities to build cultural affiliations with their trainees, client companies and other stakeholders but also tempering these cultural affiliations in order to pursue learning as a universal benefit. This latter capacity rested on their histories as public sector workers, as professionals formed to serve the public in a universalistic and ethical way. Their status as 'refugees' from the old system of centralised public education gave them the cultural resources to enable tolerance as well as learning. Significantly, the Victorian state has withdrawn from the training of vocational adult educators and is rapidly running down the trained public sector workforce in TAFE Institutes. This erosion of the cultural resources to sustain universalistic and tolerant learning, coupled with the corporatisation of public as well as private education, bodes ill for a tolerant society.

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References:

Angus, L. (1993) The sociology of school effectiveness, *British Journal of Sociology of Education*, 14(3), pp. 333-345.

Argyris, C. & Schon, D. (1984) What is an organisation that it may learn?, in: R. Paton (Ed) *Organizations: Cases, issues and concepts* (London, Harper Row).

Ball, S.J., Bowe, R. & Gewirtz, S. (1996) School choice, social class and distinction: the realization of social advantage in education, *Journal of Education Policy*, 11(1), pp. 89-112.

Beem, C. (1999) *The Necessity of Politics: Reclaiming American public life* (Chicago, University of Chicago Press).

Castells, M. (1997) *The Power of Identity* (Oxford, Blackwell).

Castells, M. (1998) *The End of Millennium* (Cambridge, Blackewll).

Connell, R.W. (1985) *Teachers' Work* (Sydney, Allen and Unwin).

Connell, R.W. (1995) Education as transformative work, in: M.Ginsburg (Ed) *The Politics and Culture of Educators Work* Bergin).

Connell, R.W., Ashenden, D., Dowset, G. & Kessler, S. (1982) *Making the Difference* (Sydney, Allen and Unwin).

Dale, R. (1989) *Education and the State* (Milton Keynes, Open University Press).

Darling-Hammond, L. (1998) Policy and change: Getting beyond bureaucracy, in: A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds) *International Handbook of Educational Change* (Dordrecht, Kluwer Academic).

Fullan, M. (1998) The meaning of educational change, in: A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds) *International Handbook of Educational Change* (Dordrecht, Kluwer).

Gee, J.P. (1990) *Social linguistics and literacies : ideology in discourses* (London, Falmer Press).

Giddens, A. (1994) *Beyond Left and Right: the future of radical politics* (Cambridge, Polity Press).

Goodin, R. (1996) *Theories of Institutional Design* (Cambridge, Cambridge University Press).

Johnson, R. (1989) Thatcherism and English education: Breaking the mould or confirming the pattern, *History of Education*, 18(2), pp. 91-121.

Jones, B. (1982) *Sleepers Wake!*

Lash, S. & Urry, J. (1987) *The End of Organised Capitalism* (Cambridge, Polity).

Lawn, M. (1996) *Modern Times? Work, professionalism and citizenship in teaching* (London, Falmer).

Lusted, D. (1986) Introduction - Why pedagogy?, *Screen*, 27(5), pp. 2-15.

Marginson, S. (1997) *Markets in Education* (Cambridge, Cambridge University Press).

Miles, M.B. (1998) Finding keys to school change: A 40-year odyssey, in: A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds) *International Handbook of Educational Change* (Dordrecht, Kluwer Academic).

Modra, H.

Nussbaum, M. (1999) A plea for difficulty, in: S.M. Okin (Ed) *Is Multiculturalism Bad for Women?* (Princeton, New Jersey, Princeton University Press).

Poster, M.

Robertson, S. (1996) Markets and teacher professionalism: A political economy analysis, *Melbourne Studies in Education*, 37(2), pp. 23-39.

Rose, N. (1996) The death of the social? Refiguring the territory of government, *Economy and SOciety*, 25(3), pp. 327-356.

Seddon, T. (2000) Capacity-building: Beyond state and market, *Curriculum Studies*, 7.

Seddon, T. & Malley, J. (1998) A staff development strategy for supporting research priorities in the State Training Service(Melbourne, Office of Training and Further Education).

Senge, P. (1990) *The fifth discipline : the art and practice of the learning organization* (New York, Doubleday).

Touraine, A. (1981) *The Voice and the Eye: An analysis of social movements* (Cambridge, Cambridge University Press).

Waters, M. *Globalisation*

Yeatman, A. (1998) Interpreting contemporary contractualism, in: M. Dean & B. Hindess (Eds) *Governing Australia: Studies in Contemporary Rationalities of Government* (Cambridge, Cambridge University Press).

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European Strategies for Reforming Initial Vocational Education

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Abstract

The SPES-NET project continued the work of a previous Leonardo da Vinci project (Post-16 Strategies, a Surveys and Analyses project) and focussed on reanalysing and exploiting, in different contexts, the four hypothetically identified reform strategies involving links between vocational education and training establishments and enterprises. The thirteen European partner countries of the SPES-NET project, including the institutional and organisational agents, provided additional data for a new conceptual framework of strategies and trends. The SPES-NET project was carried out by a multicultural team representing researchers, policy-makers, administrators and teacher educators. The research methods were calculated to promote mutual understanding and shared solutions while also producing cross-national knowledge of ways to improve the quality of initial vocational education. The partnership identified the following substrategies for improving upper secondary vocational education: (1) promoting links with higher education; (2) enhancing links with employers; (3) raising the status and qualifications of VET teachers and; (4) improving the VET curriculum. The analyses led to a number of conclusions concerning certain obstacles that hamper responses to the learning needs of modern society.

An Introduction to the SPES-NET Project

The Leonardo da Vinci project SPES-NET (Sharpening Post-16 Education Strategies by Horizontal and Vertical Networking) continued the work of the Post-16 Strategies project, carried out in 1996-1997 under the coordination of Dr Johanna Lasonen, who also originally launched the SPES-NET project. The SPES-NET project, funded by the European Commission, the Finnish Ministry of Education and the project partners, ran from 1997 to 2000. It focussed on reanalysing and exploiting the four hypothetically identified reform strategies intended to promote parity of esteem between general and vocational education in upper secondary education.

The Post-16 Strategies project was chiefly concerned with the four post-16 education strategies (*vocational enhancement, mutual enrichment, linkages* and *unification*) identified by it and with the school reform schemes connected with them. The four strategies for promoting parity of esteem between vocational and academic/general education were seen as tools for analysing the differences and similarities between the reform approaches adopted in the eight European countries involved (Lasonen, 1996; Lasonen, 1999; Lasonen & Young, 1998; Raffe, 1996).

The strategy of *vocational enhancement* entails reforming the content of vocational education and training separately from general/academic education. Esteem for vocational education is assumed to be linked with the standard of the content offered and the pedagogy applied in vocational education and training

In the strategy of *mutual enrichment* the aim is to cooperate across the divide between general and vocational education and to give students in each track a wider range of options by drawing on the best features of the other track. The two types of education are brought closer to each other but retain their distinctive character.

In the *linkages* strategy, vocational and general/academic education are given the same formal status and linked through a common certification framework. Both types of education guarantee qualification for further and higher education, and earlier studies are recognised irrespective of track.

In *unification*, the distinction between vocational and general education is abolished by combining them within a unified system and developing a curriculum which integrates the two types of education.

The first three strategies aim to maintain a separate identity for vocational and general education. By contrast, the fourth strategy seeks to combine them into a uniform upper secondary education system (Lasonen 1999).

Aims of the Project

The SPES-NET project has focussed on promoting vocational education and training in the partner countries, considered from the point of view both of reform strategies and of improving links between vocational education and working life. An initial objective of the Post-16 Strategies project was to find ways of improving the status and attractiveness of vocational education and training. This has also been one of the starting points of the SPES-NET project.

The aims of the SPES-NET project have been as follows:

- finding ways to improve the status of vocational education and training
- finding ways to forge links between educational establishments and enterprises;
- disseminating the results of the Post-16 Strategies project;

- defining dissemination activities intended to create national and international networks.

A new aspect has been the extension of the partnership towards Southern and Eastern Europe, which makes it possible to test or evaluate the four previously identified post-16 education strategies in a new context. Moreover, the project tried to find ways to develop links between education and work, which is an important method for improving the status of vocational education.

The Partnership

The partnership brought together 14 institutions from 13 countries all over Europe. The project expanded its partnership mainly to the Eastern and Southern Europe. The partners represented two different conceptual clusters, the context of researchers and the context of practitioners. The 14 institutions making up the partnership were as follows: from *Austria* the Institute for Industrial Sciences (IWI), Vienna University of Economics, from *Belgium* Bureau d'Ingénierie en Éducation et en Formation (BIEF), from *Denmark* The Danish Institute for Educational Training of Vocational Teachers, from *England* the Post-16 Education Centre, University of London, from *Estonia* the National Examination and Qualification Centre (NEQC), from *Finland* the National Board of Education, from *France* the National Institute for Pedagogical Research (INRP), from *Germany* the Institute of Vocational Education, Work and Technology (BIAT), University of Flensburg and the Institute for Technology and Education (ITB), University of Bremen, from *Greece* the Laboratory of Sociology and Education, University of Patras, from *Hungary* Budapest University of Technology and Economics, from *Norway* Agder College, from *Scotland* Clydebank College, and from *Spain* the Faculty of Education, University of Valencia.

Methods and Proceedings

The SPES-NET project was carried out by a multicultural team representing researchers, policy-makers, administrators and teacher educators. The research methods were calculated to promote mutual understanding and shared solutions while also producing cross-national knowledge of ways to improve the quality of initial vocational education. The workshops featured presentations of data and syntheses, round-table discussions and brainstorming sessions. National conclusions were drawn, European comparisons made and dissemination events organised on the basis of a programme of assignments agreed on collectively within the interdisciplinary team of experts (Stenström & Lasonen, 2000).

The range of different backgrounds represented by the partners made for a fruitful environment for a dissemination project. The interdisciplinary nature of the project can be considered a positive feature because it created bridges to shared understanding between different countries in Europe. A further positive aspect of a multidisciplinary and multicultural approach is the range of different solutions to the problems of vocational education and training that emerge. (Lasonen, 1998; Stenström, 2000).

The SPES-NET project undertook a reanalysis of the previously identified reform strategies, proceeding through the following stages:

- analysing the four post-16 education strategies in a new context provided by Eastern and Southern Europe;
  - preparing and analysing case studies of the new partner countries;
- reflecting on the post-16 education strategies;
  - fitting the new partner countries' reforms into the framework of the four post-16 education strategies;
- developing new substrategies for the previously defined four post-16 education strategies (a framework paper on the substrategies);
  - preparing a final summary of the substrategies on the basis of the partners' responses to an earlier draft for the framework paper on the subject (Young, 2000);
- surveying the forging of links between educational establishments and enterprises;
  - preparing a framework paper on education-work relationships (Marhuenda, 2000)
  - case studies of the partner countries.

Results

Reflections on Post-16 Education Strategies

An analysis of the new partners' reforms indicated that it is not easy to classify their educational systems in terms of the four post-16 education strategies. The four hypothetical reform strategies found by the Post-16 Strategies project revealed developmental contexts operating in Northern, Western and Central European countries. Extending this analysis to other regions is particularly difficult in the case of countries undergoing structural and political changes, such as Estonia and Hungary, and in the case of countries like Estonia and Greece, where vocational secondary education is not well developed (Stenström, 1999).

Table 1.
A Summary of the Four Post-16 Education Strategies in the SPES-NET Partner Countries

Countries	*Vocational enhancement*	*Mutual enrichment*	*Linkages*	*Unification*	*Not specified*
Western Europe			England France	Scotland	Belgium*
Central Europe	Austria Germany				
Southern Europe	Spain*				Greece*
Nordic countries	Denmark*	Finland Norway		Sweden	
Eastern Europe					Estonia* Hungary*

* = new partner

The question facing the SPES-NET project was whether the previously defined four post-16 education strategies are still relevant to the new partners or whether a model of two strategies (tracked and unified) should be adopted instead. However, it was decided to retain the original typology but shift the focus of the comparisons to improving the quality of vocational education. The context of the thirteen European partner countries contributing to the SPES-NET project provided additional data for a new conceptual framework of strategies and trends. A further analysis has made it clear that reform strategies must be defined in a more precise manner, distinguishing between the different substrategies for improving vocational education and its status relative to general education as follows (Young, 2000):

- improving progression to HE by students on vocational programmes;
- improving progression into employment by students on vocational programmes;
- improving the status and qualifications of vocational teachers; and
- improving the vocational and general components of the vocational education curriculum.

These substrategies were used for comparing reforms launched in different countries to improve vocational education. This comparison was based on an analysis of partner responses to the framework paper prepared by the English partner, Professor Michael Young.

Table 2 proposes a comparison matrix in which the horizontal axis is represented by the four strategies identified in the original Post-16 Strategies project and the vertical axis by the four substrategies for improving vocational education identified in the SPES-NET project. The matrix is seen as a relation between strategy (as context) and substrategy (as content). The partly hypothetical options presented in the matrix indicate the existence of three types of reform strategy because the matrix combines two of the previously defined four strategies, mutual enrichment and linkages.

All the partner countries have reported some developments definable in terms of the four substrategies. The substrategy of improving progression opportunities into higher education for vocational education students seems to be the easiest one to adopt, whereas the substrategy of improving the status and qualifications of vocational teachers is difficult especially in those countries in which the salary differentials between private and public sectors remain large. Finally, improving the vocational curriculum depends on administration, teaching and teacher education and on links between employers and vocational education providers based on mutual cooperation. The relationships between education and working life are one of the key questions involved in attempts to improve the quality of vocational education and training.

Table 2.
Matrix of Educational Reform Strategies

Types of System/Strategy

Strategies for improving parity of esteem (Lasonen & Young, 1998)	*1. Vocational enhancement*	*2. Mutual enrichment*	*3. Linkages*	*4. Unification*
	Germany Austria Denmark*	Finland Norway	England France, Spain*	Scotland Sweden
Substrategies for improving upper secondary vocational education:				
1. Improving links with HE	Reforming and expanding vocational HE	(i) Improving access to existing HE (ii) Creating a new vocational HE system		Creating a single system of post-compulsory education
2. Improving links with employers	Strengthening dual-system partnerships	Strengthening partnerships between providers of VET and employers		Strengthening links between employers and vocational and general education teachers
3. Raising the status and qualifications of vocational teachers and trainers	Equalising the status of vocational and general education teachers	Providing some common courses for vocational and general education teachers		Common training and qualifications for general education and vocational teachers
4. Improving the VET curriculum	Improving the vocational education component	More general education on vocational programmes		More integrated learning

*New partner

(Young, 2000)

Conclusions

This paper sums up the work of the SPES-NET project. The project *focussed* exclusively on *internal strategies* for improving vocational education and training, ignoring external strategies. Such external strategies as interventions in labour markets might affect the status of VET and the issue of parity of esteem.

Furthermore, the SPES-NET project *concentrated* on differences between national systems and national strategies for improving the quality of vocational education and parity of esteem between vocational and general education as they are manifested *at the policy level*. It was not, thus, concerned with new curricula and pedagogies. However, moving from the level of strategy to the level of specific curriculum and pedagogic initiatives would be a valuable topic for further research (Young & Volanen, 2000).

Despite having very different educational systems the partner countries face a number of common problems, all of which are related to ways in which attempts to improve vocational education continue to be hampered by the persistence of academic/vocational divisions in the curriculum. Firstly there is academic drift or the tendency for increasing numbers of students to opt for academic programmes. The second problem is the concern expressed by both employers and vocational teachers about the poor quality and lack of motivation of students on vocational programmes. Thirdly, academic/vocational divisions are inhibiting the development of new types of vocational programmes for the 21st century.

Moreover, despite the differences in how the substrategies are interpreted in different countries, some common trans-European trends do emerge. These can be summarised as:

- more standardisation of qualifications for students and teachers;
- a greater emphasis on work-based learning and the educational potential of workplaces;
- efforts to increase employer involvement in all aspects of VET provision; and
- more choices for students and more autonomy to localities and individual institutions.

References

Lasonen, J. (Ed.). (1996). *Reforming upper secondary education in Europe. The Leonardo da Vinci project Post-16 Strategies* (Theory Into Practice No 92). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Lasonen, J. (1998). Purpose and function of the study. In J. Lasonen & M. Young (Eds.), *Strategies for achieving parity of esteem in European upper secondary education* (pp. 15-33). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Lasonen, J. (1999). Sharpening post-16 education strategies: Building on the results of the previous projects. In M.-L. Stenström (Ed.), *Reflections on post-16 strategies in European countries. Sharpening post-16 education strategies by horizontal and vertical networking* (Working Papers No. 9, pp. 9-22). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Lasonen, J., & Young, M. (Eds.). (1998). *Strategies for achieving parity of esteem in European upper secondary education*. Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Marhuenda, F. (2000). Rethinking education-work relationships. In M-L. Stenström & J. Lasonen (Eds.), *Strategies for reforming initial vocational education and training in Europe* (pp. 239-249). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Raffe, D. (1996). European strategies for parity of esteem. In J. Lasonen (Ed.), (1996). *Reforming upper secondary education in Europe. The Leonardo da Vinci project Post-16 Strategies* (Theory Into Practice No 92, pp. 273-278). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Stenström, M.-L. (1999). Reflections on disseminating strategies for reforming post-16 education. In M.-L. Stenström (Ed.), *Reflections on post-16 strategies in European countries. Sharpening post-16 education strategies by horizontal and vertical networking* (Working Papers No. 9, pp. 159-168). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Stenström, M.-L. (2000). Reassessing VET reform strategies in a new context: Implementation of the SPES-NET project. In M.-L. Stenström & J. Lasonen (Eds.), *Strategies for reforming initial vocational education and training in Europe* (pp. 15-28). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Stenström, M.-L. & Lasonen, J. (Eds.). (2000). *Strategies for reforming initial vocational education and training in Europe*. Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Young, M. (2000). Improving vocational education: Trans-European comparisons of developments in the late 1990s. In M.-L. Stenström & J. Lasonen (Eds.), *Strategies for reforming initial vocational education and training in Europe* (pp. 147-162). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Young, M., & Raffe, D. (1998). The four strategies for promoting parity of esteem. In J. Lasonen & M. Young (Eds.), *Strategies for achieving parity of esteem in European upper secondary education* (pp. 35-46). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

Young, M., & Volanen, M. V. (2000). Towards a vocational curriculum and pedagogy of the future: Taking the post-16 education strategies and SPES-NET project findings forward for future research. In M.-L. Stenström & J. Lasonen (Eds.), *Strategies for reforming initial vocational education and training in Europe* (pp. 258-279). Jyväskylä: Institute for Educational Research, University of Jyväskylä.

SYMPOSIUM

HRD IN LEARNING ORIENTED ORGANISATIONS IN BELGIUM, THE NETHERLANDS AND THE UK

CONTRIBUTION # 1 THE NETHERLANDS

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1. INTRODUCTION

EUROPEAN STUDY INTO HRD IN LEARNING ORIENTED ORGANISATIONS

'Learning' is taking on a strategic meaning within work organisations. In efforts to become learning organisations, or to enhance knowledge management, in order to better meet strategic challenges, ever more companies strive to enhance the opportunities for (informal) employee learning. Such organisations can be labelled '*learning oriented organisations*', organisations that:

- create (on-the-job as well as off-the-job) facilities for employee learning;
- stimulate employees not only to attain new knowledge and skills, but also to acquire skills in the field of learning and problem solving and thus develop their capacity for future learning ('learning to learn').

The development of such learning oriented organisations, has a profound impact on the relationship between work and learning. Whereas learning used to be primarily equalled to training, it now becomes predominantly associated with learning from experience, and self-directed learning. This changing view of learning has far-reaching consequences for the role and tasks of Human Resource Development (HRD) professionals.

Only little is known on these changes. Research in this area was mainly restricted to a few case study projects. Moreover, it is unclear whether the results of these studies are valid for the European situation, since much of the literature on which it is based is of American origin, and empirical data were only collected on a national level (the Netherlands, UK). It is against this background that, in the beginning of 1998, a European TSER funded research project was started, with the aim to clarify the main changes in the field of HRD.

SYMPOSIUM

In the symposium of which this paper forms one part, three of the research partners will provide insight in the overall results of the study and present highlights from the results for their own countries (the Netherlands, United Kingdom and Belgium).

The aim is to start an interesting discussion both on the challenges HRD is facing on a European level, as well as on the national differences, which occur (and the causes underlying these differences). Participants are invited to provide input on the situation in their countries. This will ensure a discussion, which reflects many of the aspects associated with the (broad!) question of how HRD is changing.

This paper presents the overall project and its results, and highlights results from the Netherlands.

2. OVERVIEW OF THE EUROPEAN STUDY

2.1 OBJECTIVES OF THE STUDY

Lifelong learning has become, and will remain, an important topic for Europe, as the continent develops into a "learning society" (Gass, 1996; Brandsma 1996). Work organisations are becoming important partners in this learning society, as they provide ever more opportunities for continuous learning to their employees, with the objective to optimise organisational learning. This new focus on employee learning changes the role of the Human Resource Development (HRD) function. As a result of a growing number of publications on HRD's role in organisational learning by fostering the learning of employees, the new role of HRD becomes clearer. However, many uncertainties remain for HRD professionals, especially with regard to the question of how to bring their new roles into practice. There is little 'recipe' literature, and there are only very few instruments to help HRD officers in this regard. Meanwhile, many interesting initiatives are being undertaken by HRD practitioners throughout Europe in facilitating employee learning on a continuous basis, on-the-job and off-the-job, and thus support strategic learning processes of the organisation as a whole.

This study aimed to examine these HRD initiatives, with two main objectives. The first objective was to look more closely into the specific interpretation that European companies give to the new role of HRD in fostering employee learning. Though several influential publications from a European origin have appeared in this field, literature on concepts such as the learning organisation and fostering workplace learning has traditionally been dominated by the perspectives of US and -to a lesser degree- Japanese practices. Because the situation in Europe differs from the situation in these countries, it is useful to gain more insight into the European perspective. By focusing fieldwork on several European countries, and comparing these results to literature from the US and Japanese perspective, insight was gained in the 'European dimension'. In this way the results offer a contribution to a European model for lifelong learning, which becomes increasingly important as the development of Europe towards a learning society is progressing. This model will eventually address the role of individuals, governments, systems for primary education, vocational education and adult education as well as the role of work organisations in creating opportunities for lifelong learning. The results of this study will hopefully feed the discussion on the contribution that one of these parties - namely work organisations - can make to the emerging European infrastructure for lifelong learning. In summary, the first objective of the study was to:

> *clarify the specific European outlook on the role that HRD in learning oriented organisations can fulfil in lifelong learning, and thus contribute to the discussion on a 'European model of lifelong learning'.*

The second objective, at least equally important as the first one, was to contribute to the further professionalisation of HRD in Europe. HRD currently faces many questions and challenges as a result of the organisational need for continuous learning and change. It is important that HRD meets these challenges. Competent and proactive HRD professionals, who are able to assist organisations in the realisation of meaningful, strategic learning processes of employees, will help these organisations in securing their competitiveness. To further professionalisation of the field of HRD, both concepts and practices of HRD departments were considered in this study. The term concept refers to the way in which HRD departments view their own role in the creation of opportunities for employee learning. The practices are the way in which HRD professionals try to bring their ideas into being, including the problems they face and the way in which they solve these. By deliberately taking into account the practical considerations, the result of the study is twofold: next to a broadened knowledge base it has led to a widened range of useful working strategies and instruments. Thus, the result can serve both as:

- *practical guidelines for HRD practitioners throughout Europe on how to facilitate employee learning and thus assist their organisations in securing their competitiveness in a continuously changing environment;*
- *a venture point for further research on the changing role of HRD in work organisations.*

2.2 RESEARCH QUESTIONS

For this project, a theoretical framework on HRD's role within the concept of the learning organisation, was constructed. But this has only very limited empirical validation. Moreover, it is unclear whether the framework is valid for the European situation, since much of the literature on which it is based is of American origin, and empirical data were only collected in the Netherlands. Therefore, to clarify the European outlook on HRD in learning oriented organisations, this study aimed to answer the following questions:

1) How do HRD departments in learning oriented organisations throughout Europe envision their own role in stimulating and supporting employees to learn continuously, as a part of everyday work (with the intent to contribute to organisational learning, and thus to enhance organisational competitiveness)?

2) What strategies do European HRD departments adopt to realise their envisioned role?

3) What inhibiting factors do European HRD departments encounter when trying to realise their new role? How do they cope with these factors?

    - Which factors are conducive to the realisation of HRD's new role?

    - How do these inhibiting and conducive factors influence the vision of the HRD department with regard to its own role?

4) What differences in outlook can be found between HRD departments in European organisations and the perspectives on the role of HRD which exist in the US and Japan?

2.3 DESIGN OF THE STUDY

PHASE I: CASE STUDIES

To study research questions 1 to 3, a combination of qualitative and quantitative research methods was used. In the first phase of the project, *case study research* was the main method. The aim was to gain an in-depth understanding of the concepts of the HRD-departments, the strategies they adopt to bring these into practice and the facilitative factors as well as the difficulties they encounter during this implementation process.

For this research project, it was decided to select cases from the population of learning oriented organisations in the seven participating countries, with over 500 employees. The reason to limit the study to larger organisations is that these organisations often have a more clearly recognisable HRD function than SMEs. In order to select suitable case studies a preliminary research was conducted in each country. On the basis of studies already conducted (e.g. Leys, Wijgaerts & Hancké, 1992; Stahl, Nyhan & d'Ajola, 1993; Tjepkema & Wognum, 1995), an operationalisation was made of the concept of learning oriented organisations.

The most important selection criterion was: can the organisation be seen as a good example of a learning oriented organisation? For instance, do they value employee learning, provide facilities for (informal) employee learning, value and support the acquisition of learning skills? Other important criteria were whether the HRD tasks were carried out in a pro-active way (either by managers, HRD professionals or others), a clear vision on the role of HRD (professionals) in the organisation, and whether the organisation undertook interesting and innovative initiatives to support employee (and even organisational) learning. The aim was not to create a representative group, but to select 'good examples' of learning oriented organisations with a pro-active HRD function, since it is from such examples that the most interesting lessons can be learned. In case study research, this is a more fruitful approach than to select representative organisations (it is impossible to create a representative group, since the research group is so small). Following this procedure, a total of 28 cases were selected: four cases in each of the seven participating countries. As much as possible, each partner selected two cases in the service industry and two from manufacturing industry, to make a comparison between these two types of companies possible. Also with a view to facilitating comparison, the researchers tried, as far as possible, to select cases between 500 to 1000 employees. So, sometimes not the whole company was selected as a case, but one division or a single establishment. This proved to be difficult for some companies, so some of the cases are larger than 1000 employees.

After the partners had selected suitable case organisations, they collected data and compiled a case report for each organisation. Data collection took place in a number of ways to enhance reliability of the findings (a method commonly known as triangulation; see Yin, 1984). For a thorough analysis of the data, first a within case analysis was conducted by all partners, prior to writing the case study reports. Second, a cross case analysis was performed, both per country and overall, by the project management team. For these analyses, the matrix technique described by Miles & Huberman (1981) was used (See also: Yin, 1984).

PHASE II: SURVEY & LITERATURE REVIEW

In a second phase of the study a *survey* was held under a larger group of organisations, to ascertain to what degree the case study findings are representative for more organisations throughout the seven EU-countries that participate in the study. Moreover, to be able to compare the results of the European study with Japanese and US views on learning in work organisations, a *literature review* of Japanese and North American publications was conducted. This was used to ascertain whether there is a European outlook on HRD in learning organisations.

The primary respondents for the survey were HRD directors/HRD managers: those with a strategic/managerial role in the HRD function. Since they have a helicopter view of the HRD function, they were able to answer all the questions (on vision as well as on strategies). In case of very large organisations, the HRD function on the division level or a large establishment was selected, not the HRD function on the corporate level. In order to optimise response rates, respondents were approached by phone first, to ask whether they were willing to fill out the questionnaire ('warm approach'). If respondents agreed to participate in the study, questionnaires were subsequently sent by mail. The questionnaire addressed the same topics as the case study research: organisational context; vision of HRD function on own role; strategies to realise envisioned role; conducive and inhibiting factors. More specifically, the following subtopics were included in the questionnaire:

- organisational context
    - size of organisation (in number of employees)
    - structure of the organisation (division, functional, network, project, mix)
    - economic sector (manufacturing industry, service sector *for profit*, service sector *not for profit*, trade)
    - reasons for becoming a learning oriented organisation
    - actual changes that organisations implement in order to meet their new strategic challenges
    - current and future importance of general strategies (like increasing client focus) to cope with changes
- vision on role of HRD function
    - current importance of several HRD objectives (like supporting current strategic objectives in general)
    - level to which HRD objectives are expected to change in the future
    - current and future importance of HRD strategies (like improving knowlegde sharing)
    - desired division of responsibilities for HRD activities between HRD professionals, managers, employees and external training providers
    - degree to which the HRD function should fulfil certain HRD activities
    - desired attention to employee, team and organisational learning
- position of and strategies used by HRD function
    - position of HRD function (central department, de-central departments, shared responsibility of management and employees)
    - involvement of HRD in meeting new strategic challenges

    - current division of responsibilities for HRD activities between HRD professionals, managers, employees and external training providers
    - involvement of HRD professionals, managers, employees and external training providers in different HRD tasks (like training needs analysis)
    - frequency of use of several HRD strategies to realise envisioned role
    - degree to which the HRD function fulfils certain HRD activities (like designing and realising HRD processes)
    - current attention paid to employee, team and organisational learning.
- Factors that influence the realisation of the role of the HRD function
    - existence of influencing factors
    - direction in which they influence the change process

Just like the case study research, the survey was aimed at HRD departments in large (500 employees or more) organisations, which can be considered to be learning oriented organisations. The primary objective of the survey was to verify case results. Therefore, it was important to select organisations according to the same selection criteria, namely: there is reason to assume the company can be regarded a learning oriented organisation (or aspires to be one); the company has an HRD function and the company has at least 500 employees.

Large organisations were chosen because these usually have a specialised HRD department with an explicit view on its own role within the organisation. Though this may also hold true for some smaller organisations, the survey was held under large organisations only, in order to facilitate comparison of results. Furthermore, concepts and initiatives found in large organisations often also prove to be useful for smaller organisations, even SMEs. The desired amount of organisations participating in the survey was approximately 140 (20 per country). Of course, this is a rather limited number, but the amount of learning oriented organisations was estimated to be not very high at the outset of this study. The total amount of learning oriented organisations with a pro active HRD department is estimated to be not very large, though this situation is somewhat different for each of the participating countries. Since some of the partners found it easier than expected to find suitable organisations who were willing to participate, for some countries the amount of respondents was higher than planned. Eventually, the questionnaire was completed by respondents from 165 companies.

2.4 THE PARTNERSHIP

The research project team consisted of partners from seven countries, plus a member of the European Consortium for the Learning Organisation. The project management team consisted of researchers from the University of Twente (The Netherlands). Appendix 1 shows an overview of the partnership.

Each partner organisation took care of data collection in its own country (the two Italian partners shared that responsibility for Italy). The project management team prepared drafts of all relevant documents, such as the data collection plan, data collection instruments, theoretical framework and the final report. The partners commented on those drafts, and their input was used to finalise documents. The partners met for two partner meetings, and otherwise communicated frequently through e-mail, phone and letters. The role of ECLO in the partnership was mainly to help find suitable cases and to facilitate the dissemination of findings.

2.5 RESULTS

CONTEXT

In a broad sense, the companies participating in the case study and the survey can be compared to each other, with regard to the organisational context factors.

Just as for the 28 case organisations, improving client focus is an issue of major importance to the 165 companies participating in the survey. Other key strategic issues are improving and innovating products, processes and services. Strategies with regard to developing human resources, since these are a key factor in improving organisational learning are relevant, but come in second place. They appear to be 'means to an end', instead of strategies with an inherent relevance.

Learning oriented organisations employ a rich variety of change strategies in order to stimulate their development toward a learning organisation. Creating a client oriented culture appears to be an often-used measure (more so than became apparent from the case studies). But initiatives in the field of changing organisational structures (such as implementing teams), attention to management development; changes in the strategy development process (e.g. sharing a mission statement); creating a learning culture and changes in HRD strategies and structure were also encountered. The most important conclusion that can be drawn is that companies use a rich bouquet of change initiatives, in which no one type of change is particularly dominant. Which type of changes are initiated is probably determined by a mix of factors, such as strategical objectives, employee characteristics, current organisational problems, organisational structure and management style, etcetera. Unravelling these relationships falls beyond the scope of this project, which focuses mainly on HRD, not the companies as a whole.

The desire to become more client centred, among other things by continuous improvement and innovation, appears to be the main motivator for wanting to become a learning organisation. Though more people-oriented reasons (such as improving the quality of working life) seem to play a role as well.

RESEARCH QUESTION 1: ENVISIONED ROLE

Conclusions from the case studies regarding important HRD objectives and the division of HRD tasks appear to be supported by the survey results. HRD functions have objectives in five areas:

- Supporting the business;
- Supporting (informal) learning;

- Supporting knowledge sharing (as a special form of supporting informal learning);
- Development and coordination of training;
- Changing HRD practices.

All are rather important, some more so than others, but differences are too small to reflect a real rank order of objectives. Of course, changing HRD practices is an intermediary objective, it is not a purpose in itself, but something HRD functions strive for a reorganisation of HRD practices, in order to better fulfil their tasks. Most important to note is the expectation of survey respondents that objectives in the field of supporting informal learning and promoting knowledge sharing are expected to increase most in importance in the future. Also relevant to point out is that supporting the business (objectives) is one of the most important HRD objectives, but results from the question concerning HRD's involvement in important organisational change initiatives (see previous section) suggest that this involvement is usually not very large. So, the question as to in how far HRD fulfils a strategic role remains open.

With regard to the division of HRD tasks, it becomes clear that HRD professionals still carry the biggest share of responsibility for HRD (at least in their own estimation of the situation). Managers and employees are important active partners, and are expected to become more so in the future. Their role is predominantly one of identifying learning needs, stimulating and supporting informal learning, ensuring continuous learning (of oneself and others). HRD professionals provide support, among other things by organising training and supporting informal learning efforts.

RESEARCH QUESTION 2: STRATEGIES

The case studies yielded a wide range of strategies employed by HRD professionals to realise their envisioned role, without a clear indication of the relative weight of each of these strategies. The survey attempted to establish somewhat of a ranking order: which strategies are considered most important? This proved difficult, since nearly all strategies are rated as 'relevant' or 'important' by the respondents. However, when overlooking the general picture it does become clear that training-related strategies still fulfil a significant role. Among the least important strategies are instruments and initiatives to increase employee responsibility for learning.

As such, results do not paint a picture of very innovative HRD practices, dominated by new methods such as knowledge management networks and stimulating learning climate in the workplace. Of course, for one part this is because HRD objectives are not that far-stretched. Providing training is still an important aim. For another part, these outcomes might indicate that HRD practices to some extent fall behind HRD visions.

RESEARCH QUESTION 3: INFLUENCING FACTORS

Are certain specific influences keeping HRD professionals from changing their practices more significantly? Neither in the case studies nor the survey, an unequivocal direction of influencing factors could be established. In the case studies, some factors were found to negatively affect change processes in one organisation, while they were reported as positive driving forces for other companies. Sometimes factors were experienced as a negative and a positive influence at once in a single organisation (but in different parts). Survey results provide some insight into the most important influencing factors. There is a group of factors, such as motivation for learning or money for HRD activities, which impacts change sometimes positively (sufficient motivation, sufficient resources) and sometimes negatively (lack of motivation, lack of money). On the other hand, there is a small group of factors which in general appears to have a negative influence. The factors which appear to burden the change process most strongly, are:

- Insufficient time for learning on part of the employees;
- Insufficient time for performing HRD tasks on the part of managers;
- Lack of clarity on HRD's role.

RESEARCH QUESTION 4

The fourth and final research question was: What differences in outlook can be found between HRD departments in European organisations and the perspectives on the role of HRD which exist in the US and Japan? First, some remarks have to be made with regard to differences between the European companies and countries participating in the study.

During the project various attempt have been made to find differences between organisations as to the envisioned role of the HRD functions, the strategies organisations employ to implement HRD within the framework of lifelong learning and ideas about the learning organisation, and the influencing factors. During the analysis of the case studies the research team tried to find differences between types of organisations, and an additional Masters thesis project was conducted to find these differences (Ilina, 1999). The organisations were divided into four cells, each of which corresponded with the selection criteria for the case studies: economic sector (service of industry) and production type (customer orientation or mass production). In neither the analyses of the research team, nor in the Masters thesis project, differences were found. This was furthermore confirmed by the survey results. It is therefore concluded that the type of organisation does not influence the way in which these organisations envisage the role of HRD, the strategies they employ to implement HRD activities, and the factors that facilitate the attainment of the envisioned role of HRD. This means that organisations of the type selected for this study (large organisations that are learning oriented) do not differ much as to their philosophies, policies and practices regarding the role of HRD and the way in which this is implemented. Furthermore, in these organisations, factors that influence the implementation of the ideas tend to have the same impact.

Another issue that returned quite often was the question as to whether the results of the study are different for the different countries included in the study. In other words, is there a European outlook on the concept of HRD in the organisations selected, or does cross-national variation dominate?

This appeared to be a question that was hard to answer, because finding national differences was not one of the research questions deliberately posed at the beginning of the study, and cultural, political, jurisdictional and other related factors were not included in the various components of the study. Nevertheless, based on the survey data some comparisons can be made, and although the absolute differences between countries in the study are small, there appear to be various striking differences. It is hard to test these differences by the methodology used in the study. Therefore, Kruskall-Wallis tests of the survey data between countries were performed, and the results showed that many of the items in the questionnaire were statistically different, but one can argue that this is hard measurement with soft data. Since most of the items in the survey are perceptional by nature, it is not sure whether cultural factors play a role in the explanation of the differences between countries.

Having said this, the European situation was still compared to the outlook on HRD in Japan and the US. To this end, a literature review was undertaken. This review brought to light some interesting country-specific approaches with regard to HRD, though also for these countries, as for Europe, there is no overriding 'Japanese' or 'US' HRD vision. Differences between companies are huge.

MAIN CONCLUSION

Perhaps the most important conclusion of this study is that the learning organisation is a metaphor that is still important for HRD professionals, as to:

- the need for developing collective intelligence within organisations and organisational forms supporting such a need, overcoming the remains of fordism at different levels;
- the importance of knowledge and in particular tacit knowledge which has to be recognised and valorised insofar it is embedded in human resources;
- the overcoming of training-based development policies towards new policies fostering learning in different ways (support to competencies development, learning networks, learning self-assessment in the communities of practice, etc..).

The research shows the need for a clearer status of HRD within HRM and for significant improvements of HRD tools, techniques, types of interventions, self-assessment of goals and results. Such a status and improvements should be based on further growth of important issues, such as:

- self-awareness of possibilities and limits of HRD function by the side of its members;
- up-dating of professional skills, especially regarding the interpretation frames of the evolutionary realities in which HRD activities take place.

The crucial precondition is that HRD functions should increase their strategic orientation in order to being involved in strategic processes. HRD professionals are challenged to continuously evaluate and redefine their activities in order to meet these strategic requirements. However, these rather strategic aspects have not been investigated in detail so far.

The study also shows that the development of human resources is not a prerogative of HRD professionals. More and more it is becoming a business of line-managers. This has different reasons:

- convergence of management of organisational competencies (aimed at internal effectiveness and competitive advantages on the market), and the management of individual/communities competencies (based on explicit and tacit knowledge);

- new ways of organising firms, in particular: a. the diffusion of forms of organisation by processes requires that line managers responsible for processes, or parts of them, can flexibly manage the resources at their disposal in view of specific dynamic exigencies of the processes (versus the relatively static exigencies of functions); and b. the decentralisation processes require specific forms of local governance of knowledge and competencies (versus the traditional position of HRD in the headquarter).

There are discernible trends in the changing role of HRD professionals across Europe. These trends also suggest an expanding and increasingly significant role for managers and individual employees in HRD practices.

3. RESULTS FROM THE NETHERLANDS

In this section of the paper we will present the specific results for The Netherlands. First we will go into the case study results. Next we will present the survey results.

3.1 CASE STUDY RESULTS

One of the main themes from the study is that the vision of HRD professionals with regard to their own role is changing, but they find it difficult to (a) clearly communicate this new vision and (b) to bring it into being. Challenges encountered are for instance the question of how to actively involve line management and employees in HRD issues, and the issue of providing support for informal learning. For the Dutch situation, the results are highly similar to the overall picture. Therefore, below, the focus is on case results, which were also not very different from those in other countries, bur provide some interesting extra insights, for instance with regard to the role division between managers, HRD professionals, employees and competence managers.

ORGANISATIONAL CONTEXT

Four case organisations were visited in the Netherlands: Akzo Nobel Chemicals (chemicals manufacturer), Ericsson Telecommunication, BAC (IT Centre of the Dutch Internal Revenue Service) and KIBC (a construction company). Table 1 provides a brief description.

Case	Branch	Employees	HRD function	HRD professionals
Akzo Nobel Chemicals Hengelo (Akzo) • Business Unit Salt	Chemical Industry	Total: 700 BU Salt: 240	Shared function: Central HR department/ local HR practitioner	1 HR manager central 1 HR practitioner BU Salt

Ericsson Telecom-munication (ETM) • Research & Development (R&D)	Tele-communication	Total: 1500 R&D: 450	Shared function of HR department/ Training Support Centre/ competence managers	R&D: 15 competence managers
BAC (IT centre Internal Revenue Service) • Division Systems Development (SO)	Information technology services	Total: 2500 SO: 1100	Shared function of central HR department/ Open Learning Centre / local resource managers	2 HR practitioners 1 HRD practitioner 10 resource managers
KIBC • Business Unit Utility Building (UB)	Building sector	Total: 1900 UB: 650	Shared function of central HR department/ local HR department	2 HR practitioners 1 HRD practitioner

Table 1: overview of Dutch case organisations

For all Dutch case study organisations it was found that the companies deemed it important to make changes are mainly because of the need to deal with strong competitive markets (for all but BAC) and/or fast technological changes. In order to respond to these developments the case organisations want to improve their client centredness. Very important in all cases is the creation of a new organisational culture, which reflects the market-oriented orientation but also stresses the importance of employee learning to realise client service.

In order to improve the organisation's client centredness different strategies were employed such as reorganisations, Total Quality Management and communication and information systems. Several efforts to increase possibilities for employee learning are also visible in these case organisations. Most common are the use of a competence management system (Ericsson, BAC and KIBC) and a new role for managers who set performance targets with employees and at the same time derive learning needs (Akzo, BAC, KIBC). Remarkable is the fact that three companies provide training for managers in order to fulfil their new role as coaches (Akzo, BAC, KIBC).

ENVISIONED ROLE OF THE HRD DEPARTMENT

It seems that HRD departments from all four case organisations share the opinion that the more traditional HR and HRD tasks should become the responsibility of line management while the HRD department is changing towards a more supportive and directing role. Not every department has realised this task division yet. Linked to this notion is the active role that is expected from employees in their own development, especially within BAC and Ericsson (highly educated professionals) but also within Akzo and KIBC (lower educated, manual workers). The emphasis of new HRD tasks is on matching HRD policy with organisational policy and on a consulting role towards line management.

Likewise, HRD departments of all four case study organisations hold the view that HRD policy is a "tool of management" to be used to realise the attainment of organisational objectives. Next to this, all HRD functions aim to support employee development, as a tool for organisation development. Competence management and the use of personal development plans are the tools used to realise the link between the two.

STRATEGIES ADOPTED TO REALIZE ENVISIONED ROLE

When looking at strategies with regard to HRD organisation it can be said that all HRD departments have changed the organisation of their department to a greater or lesser extent. Decentralisation of HRD tasks is an important means to realise HRD's envisioned role of policy-maker and consultant. Managers have become important new participants in the HRD organisation. Especially at BAC and ETM where resource managers/ competence managers have been implemented. They are responsible for employee development focused on present but also on future needed competencies for the organisation and for individual employees.

At Ericsson's, with the introduction of competence management, the company has separated process management and people management. There are now three types of managers: operational managers and process owners (who are responsible for process management) and competence managers (responsible for people management). The last operate as a kind of internal job agency: at the start of each new project, they see to it that each project has the necessary competencies (i.e. the necessary employees) to fulfil its objectives. Competence managers are part of the HRD function. Besides supporting employees with developing personal development plans and career development plans, they are also responsible for analysing required competencies in the organisation now and in the future. From employees an active role is expected in their own development. They have to address their own development needs and career wishes, and work on a Personal Development Plan. The HR managers formulate HR policies, among which competence management policy. The Training Support Centre provides advice on fulfilling individual training needs, provides training and act as a broker for external training agencies.

The main objective with which competence managers were installed, was to realise a competence-based organisation (a corporate objective). As explained in the above, the idea is that they make competence analyses and personal development plans together with employees, while the Training Support Centre provides the training to realise these plans (either internally or externally). Of course, in practice the realisation is sometimes difficult. Operational managers are not yet used to asking for 'competencies' for a certain project, they ask for specific people. Problems arise for the competence manager when several managers ask for the same persons. A second difficulty is that competence managers have to fulfil the current need for competencies but also need to safeguard individual development of employees, sometimes the two don't match. A third problem is the fact that each competence managers works for some 50 employees, this is a large group and it is difficult to find the time to talk regularly with everyone. Competence managers have to be careful not to let their role be limited to a mentoring role, losing the strategic (planning) aspect. All in all, the constant work pressure for competence managers is seen as an important inhibiting factor. Because of a lack of time competence managers are continually working on the daily support of employees. They have no time to focus on future needed competencies, which also is a very important task. The company is now working on extra administrative support for competence managers in order to decrease work pressure.

Just like Ericsson, BAC has introduced resource managers who - like competence managers -are responsible for supporting employee development and for looking and future needed competencies. In total 10 local resource managers are active, who divide employees over the different projects (and who are responsible for facilitating employee development and career counselling). The resource managers have a similar role to the competence managers at Ericsson, and appear to face similar problems. Employees expect them to pay attention for employee development, project managers want them to provide good employees who are able to work on all kinds of tasks and who are quickly available and top managers want the resource manager to continually look for long term developments and consequences for employees. It is not easy to resolve these tensions.

For BAC, lack of time (other projects ask more attention) and lack of a learning culture are important negative factors. In order to improve the link between HRD policy and company policy the HRD departments wants to implement director groups in which HRD professionals, top managers, line managers and resource managers participate to improve this link. To stimulate a learning culture the HRD function works to increase possibilities for informal learning and knowledge sharing. KIBC, finally, found that improving HRD policy and improving communication and information flows are both very useful in decreasing resistance and increasing motivation for learning.

Facilitating courses remains the most important means to fulfil identified learning needs, but some organisations are experimenting with other, more informal ways of learning. For instance BAC, where knowledge sharing through the Intranet and theme-meetings is stimulated, Akzo, where employees can learn through participating in quality improvement teams, and KIBC, where managers are supported in their new role as coaches. Ericsson does underline the importance of informal learning on the job, but does not deliberately try to stimulate or support it. It does, however try to motivate people for learning and changing (stimulate the 'drive for learning').

INFLUENCING FACTORS AND COPING STRATEGIES

For all four HRD departments it can be said that work pressure is the most inhibiting factor for attaining the envisioned HRD role. Other important projects are so time demanding that HRD activities are decreasing in importance. A second important factor is lack of motivation and support from management and a lack of motivation on the part of employees (3 cases). Lack of understanding of the HRD policy compounds to the motivational problem (2 cases).

A special problem is the difficult position of the competence managers and resource managers (2 cases). Finally, an insufficient learning culture is an inhibiting factor for some companies (2 cases), as a result of a long-term focus on formal training only.

Whereas a lack of a clear HRD policy and communication on HRD's new role is an inhibiting factor, a clear policy and good communication are conducive to the change process, because it positively influences motivation for change.

Increasing learning possibilities and facilities for learning also help the change process (3 cases). For instance, at Akzo, the new possibilities for job enrichment and social skills had a very positive influence on employees willingness to learn and learning skills.

Strategies to cope with the inhibiting factors differed for the four case organisations. For Ericsson, a major problem is the difficulties competence managers experience in their new role. Therefore, the company is now working on providing extra administrative support in order to decrease their work. For BAC, lack of time (other projects ask more attention) and lack of a learning culture are important negative factors. In order to improve the link between HRD policy and company policy the HRD departments wants to implement director groups in which HRD professionals, top managers, line managers and resource managers participate to improve this link. To stimulate a learning culture the HRD function works to increase possibilities for informal learning and knowledge sharing. KIBC, finally, found that improving HRD policy and improving communication and information flows are both very useful in decreasing resistance and increasing motivation for learning.

3.2 SURVEY RESULTS

Before we turn to the survey result of The Netherlands, we need to restate that the analysis of differences between the participating European countries, was not included in the project from the beginning, and finding differences between countries based on the case studies therefore was not the a main purpose. But the research team addressed the question of national differences repeatedly, and was surprised by the fact that these differences could not been found in the case study materials. The survey results made it possible to study the national differences more closely. As stated Kruskall-Wallis tests of the data were performed, using the countries as grouping variable. All items within relevant variables in the questionnaire were tested, and Table 2 shows the number of items that were statistically different (at p<.10 level).

Variables	Total number of items	Number of sign. Diff. Items (Country Diff.)
1 Current general strategies	14	10
2 Current HRD strategies	4	4
3 Future general strategies	14	11
4 Future HRD strategies	4	4
5 Current change strategies	13	12
6 Degree of involvement of HRD department	13	9
7 Reasons to become a learning organisation	7	3
8 HRD function fulfils listed roles	7	7
9 HRD function should fulfil the listed roles	7	5
10 Current adopted strategies by HRD function	20	17
11Future adopted strategies by HRD function	20	9

12 Current value of influencing factors	12	12
13 Influence of listed factors on HRD function	12	9
Total	147	112

Table 2:Total number of items for the selected questions in the questionnaire, the number of statistically different items for these questions that are statistically different by country by question (p-level < .10)

Table 2 indicates that 76% of the items are statistically different across countries. Although this indicates that there are many cross-country differences, we have to note that the absolute differences on the 5-pointscales found are small, but on the other hand, the maximum difference between averages of countries exceeds 2.0 points on the 5-pointscale, which is quite large.

A second remark up front is important, as the sample from the various participating countries are small, and the sample from The Netherlands is 16 organisations, which is less than the 20 organisations planned (the main reasons for not participating in the survey was lack of time). This means that the results have to be interpreted with caution.

All participating Dutch organisations have over 500 employees. The largest organisation has 35.000 employees. Most of the organisations have a divisional structure (10 of the 16). Half of them have a central department for HRD, 4 have local departments (decentralised), 1 has both, and in 1 organisation HRD is the shared responsibility of management and employees (2 organisations did not respond to this question). As to economic sector, 7 organisations are from industry, 5 from service oriented profit organisations, 2 from trade, and 1 from a combination of industry and trade (1 organisation did not answer this question).

The range of differences between the means of the countries and The Netherlands is +0.3 through –0.4. Most differences do not exceed 0.1, which means that the scores of the Dutch sub sample are rather consistent with the averages of all countries taken together.

As to the behaviour of organisations to cope with strategic challenges, The Netherlands scores +0.3 above average on cross-country average. At item level, the importance of mergers and acquisition as strategic challenges score 0.6 points higher than the across country average. For increasing competitiveness and cost advantages, the mean differences are 0.5. This implies that Dutch organisations are heavily focused on mergers and take-overs and the like, increasing competitiveness, and cost advantages compared to the organisations in the other countries in the sample. This is consistent with the general notion of how organisations in The Netherlands have been coping with change that was urgent and profound. As a result of trends like increasing competition, globalisation, customer orientation, fast technological change, and quality management, organisations have stressed the importance of strategic alliances with other companies, product innovation, process innovation and cost reduction.

It is remarkable that The Netherlands does not deviate from the means as to way in which organisations in the sample in Europe envision the role of HRD. The average position of The Netherlands regarding the current importance of HRD objectives, the level to which these objectives are expected to change in the future, the current and future importance of HRD strategies, the desired division of responsibilities, the degree to which the HRD function should fulfil certain HRD activities, and the desired attention to employee, team and organisational learning, is the same as the average position of the organisations in the sample.

As to the position of and strategies used by Dutch HRD functions we can note some interesting differences. The mean difference for the Netherlands concerning the degree of involvement of HRD departments in major change initiatives employed to support the most important strategic issues is less that the European average (-0.3). At item level sharing a mission statement scores lowest (2.7). This indicates that the HRD department is not so much involved in sharing the mission statement. It could be that corporate communications offices have had the task to do so. But it is not unusual for corporate CEOs to communicate the mission statement to branch management directly. The second item that scores below 3.0 on average concerns the translation of central strategies (2.9). HRD departments in the Netherlands are less involved in this than those in most other counties. This is not what the HRD professionals in The Netherlands tend to claim. Their ambition is to have considerable impact on the translation of general strategies into operational activities. HRD – they tend to state – is essential in the implementation of many innovations. The data from this survey may paint a more reliable picture of the current position of HRD in this respect: HRD has to integrate itself with strategically important decisions making processes so that it can be more heavily involved in putting strategy into practice. There is no doubt about the importance of the strategic integration of HRD in these processes.

Strategies that are being used to realise the envisioned role of HRD score higher (on average +0.3) in The Netherlands. There is one item within this variable that is remarkable in that it scores 0.7 higher than the average of all countries. This item is about the open learning centre. Apparently, considerably more organisations in the Netherlands have implemented open learning centres compared to the organisations in the other countries in the survey. This may be an effect of the trend towards self-responsible employability, and self-directed learning that goes along with this. Organisations in The Netherlands have dramatically changed labour relations during the second half of the nineties. In most organisations life time employment was usual, and the retention rate of employees in organisations was very high. But development is the labour market, and the recession in the beginning of the nineties resulted in a new, more flexible relationship between employer and employee. Employers did not want to take long term responsibilities for labour contracts anymore, and stressed the importance of self-responsibility for the employability of employees. They asked employees to take care of their own future, a future that might also be to continue the career at another employer, especially when the organisation starts downsizing or reorganising. These organisations create HRD facilities to support learning, but in most cases the initiative to take active part in learning processes is left to the employees. Open learning centres, or more generally speaking, self-directed learning, thus is a strategy used by organisations to take their responsibility in HRD, which is to offer facilities that can be used by employees if wanted.

Finally, as to the factors that influence the attainment of the envisioned role of the HRD function, the Dutch organisations score less than most of the other countries (the average difference is -.04; only Belgium scores lower). On item level, the discrepancy is most striking for the time managers have for performing HRD tasks, and time for learning on part of the employees. The attainment of the envisioned role of the HRD function is – according to the respondents in the Dutch organisations – rather indifferent from these factors. This makes one dilemma painfully visible: the importance of HRD versus the importance of job performance. These two seem to converge, but in many situations, direct job performance prevails. HRD is an investment with future benefits, whereas constraints under which operational management and employees are working, stress the priority of direct benefits, this job performance, whereas for the sustainable performance of the organisation HRD is essential. How can organisations solve this dilemma? Only by putting HRD on the policy and strategy agenda at corporate level, to reach agreement on its strategic value, and to create conditions that ends the conflict of interests between long term development goals and the short term performance goals. Introducing the role of competence manager might be a solution. To make this a success, employees need to get time and space to develop themselves. Competence management is instrumental to this goal, but will only be effective if learning and development resources are allocated to the individual. Might these resources themselves not be enough for effective HRD? We do not think so. Although it may facilitate self-directed and spontaneous learning, if remains necessary to help individuals in their development. This holds especially for lower educated employees, or those who have an unclear vision as to their future plans and opportunities.

To conclude, we think that the developments described lead to changes in the roles of the various partners in learning. HRD professionals move from 'trainer' to 'consultant', line managers develop from 'boss' to 'coach', and employees change in to 'self-directed learners'. Their new roles emphasise the importance of learning. HRD consultants provide services for learning, managers as coaches try to support the development of their employees, allocate resources and create conditions for this. Employees (as self-managing learners) are investing in their own future by using the offer of their organisation that is given to them by their manager, and accepting the help of the HRD professional. Given the potential conflict of interests between the parties involved (management wants to promote direct performance, HRD professionals want to stimulate the development of the organisation, individual employees want to foster their career development) organisations may introduce competence managers as a 'fourth partner'. Their role is to manage competencies across work teams, and to achieve development of competence. The advantage of this role is clear: to warrant employee development that is consistent with the organisational strategy. The disadvantage of this new role is that employees may perceive the competence manager as a second boss, and the operating managers may perceive the competence manager as a competitor and a cost factor? Time will learn whether competence management is an effective solution that is feasible for other companies as well.

4. FURTHER RESEARCH

The cross-national differences found in this study need to be analysed further, as in the survey no questions were asked to explain the reasons as to why certain items were rated as being more important than others. It would be informative to link this further study to the national contexts, incentives for organisations and individuals to invest in HRD activities, policy measures taken by the national administration, law enactment in certain fields (like environmental law, law on labour conditions, safety), and the developments in the educational systems. This may show further intra-European diversity than has been found in this study. But above all, it may explain the diversity to a large extent, and this may lead to guidelines for European policy efforts to improve conditions for HRD in European countries. At this stage we conclude that there is no one single European model for HRD, and that there are subtle but meaningful differences as to the philosophies, strategies, and practices on HRD across the countries in the study.

APPENDIX 1: THE PARTNERSHIP OF THE PROJECT

Country	Organisation	Research team
The Netherlands (project management)	University of Twente, Faculty of Educational Science & Technology	Prof. dr. J. Scheerens Prof. dr. M. Mulder Ms. S. Tjepkema, Msc Ms. H. ter Horst, Msc.
Belgium	Vlerick Leuven Gent Management School	Prof. dr. D. Buyens Ms. S. van Schelstraete, Msc.
Finland	University of Jyväskylä, Department of Education	Prof. dr. T. Vaherva Ms. H. Woods, Msc.
France	BLV Learning Partners	Dr. D. Belet
Germany	University of Chemnitz-Zwickau, Faculty of Economics Department of Personnel and Management	Prof. dr. P. Pawlowsky Dr. R. Reinhardt Ms. K. Meinicke, Msc. Ms. A. Buschman, Msc.
United Kingdom	Nottingham Trent University, Nottingham Business School, Department of HRM	Prof. dr. J. Leopold Prof. dr. J. Stewart Ms. Dr. S. Sambrook
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Factors influencing changes in a scope of individual VET qualifications.

Comparison between Finland and the Czech Republic

Paper for presentation at ECER 2000, 20-23 September 2000, in Edinburgh, Scotland, UK (25 August 2000)

ABSTRACT

This paper explains important factors influencing a structure of occupations. It stresses especially types of labour market and division of labour, different conceptual approaches to a design of VET programmes (educational concepts) and predominant features of education systems and also VET schemes as important factors influencing national occupational structures.

Comparative parts of the paper presents Finnish and Czech analyses of changes in a scope of qualifications, which are offered in the countries by vocational education and training (VET) programmes with dual orientation. The analyses take into consideration empirical data and discuss especially changes in common, general parts of the VET programmes.

INTRODUCTION

This paper puts forward results of the comparative study "The Concept of Vocational Qualifications. Changes in a Scope of Individual VET Qualifications (considered against the background of different features and educational concepts underlying national VET schemes)". The study has been one of numerous results of the LEONARDO partnership project DUOQUAL. It has been elaborated by Finnish and Czech partners as a joint topic study, which searched into common as well as different features of the national concepts of VET with dual orientation towards employment and higher education.

Our general hypothesis is that a broader context of factors has to be followed for a successful comparison and for explanation of changes in a scope of VET qualifications in different countries. The hypothesis is illustrated by the very long title of the study, which shortly explains the object as well as the background of the comparison.

At first, we defined a scope of VET qualifications as broadness of professional and study activities, in which it is possible to exert the VET qualifications.

Then we selected some factors influencing a scope of VET on the background of our discussion, in which we took in consideration preconditions and environmental factors influencing VET programmes. We described the factors and explained their main impacts on VET qualifications. Main results are summarised in the first part of the paper.

At second, we described a development in VET qualifications in Finland and in the Czech Republic, which was made in regards of a scope of the qualifications. Only some important data and facts, which illustrate main differences and similarities, are involved in the paper.

Finally, a comparison between the development in the both countries was made. Conclusions of the comparison between both countries are summarised and some conclusions as regards the used comparative method are summed up.

General Factors Influencing a scope of VET Qualifications

Every discussion dealing with a structure of VET qualifications has to start with general factors influencing occupations and their structure. Main general factors and relations among them can be expressed with the help of a triangle.

Figure 1 Three general factors influencing the structure of an occupation and working activities

Fig1.bmp

The main general factors are:

- division of labour (technical and organisation influences),
- labour market (social and economic influences),
- national vocational education and training system (if appropriate in the framework of the education system).

Figure 2

Some important factors influencing a scope of VET qualifications at national level

Division of labour

- structure of national economy;
- development of technology, at present mainly IT

Labour market

- structure of institutions influencing labour market;
- transparency and legal status of qualifications;
- general type of labour market (external or internal);

VET system

- structure of institutions and facilities providing VET
- type of VET conception
- predominant features of national educational systems

At first, we can mention structural differences connected within each of the general factors. They result in very different relations between institutions acting in the framework of the triangle. In the framework of division of labour, there are different structures of companies and enterprises and their composition depending on different national raw material bases, their progress in technology and management. Different structures of unions, associations of entrepreneurs, institutions for social negotiating and for influencing of labour market demands. Different education facilities, different links of their management, financing or founding to national educational systems and/or to companies make differences between national VET systems. Figure 3 shows an example of different positions of national training schemes according to a status of trainees.

>From the point of division of labour, we can follow some common tendencies as a result of a development in natural and technical sciences. Large part of theoretical knowledge in VET is asked for optimal operation of modern technologies. Also the development of information technologies becomes nearer management and performance of working activities in very different technologies in the past.

The tendency leads to overlapping of qualifications demanded in existing occupations and to substantial changes of VET structures but they are also a reason for rising influence of VET on the structure of occupations.

Figure 3

Division of training schemes according to the status of trainees

Fig3.bmp

According to Münk, Dieter: Berufsbildung in der EU zwischen Dualität und "Monalität" - eine Alternative ohne Alternativen? Berufsbildung, 1997, no. 45, p. 6

There are very different connections of VET qualifications with real professional or vocational status of professions and occupations in different countries as well as different approaches to recognition of qualifications at labour market. The approaches oscillate between legal links of the acquired qualification status or a full employer's competency to recognise qualification of hired personnel.

We also can find nationally differing impacts when we distinguish between external or internal character of labour market. In the countries with external labour market features, employers look for labour forces of such qualifications, which meet their entrepreneurial interests. By other words, they require to adjust VET qualifications for very specific working activities. These requirements result in the development of VET education programmes for specific qualifications.

In the environment, where the internal labour market predominates, employers organise retraining and on-the-job training. They train staff for current working tasks. In this environment the education system can offer vocational qualifications with broader profiles. Specific vocational courses are implemented after initial training and in co-operation with employers and their associations and chambers.

VET system factors

Conception of VET programmes

The provision and conceptions of VET have shifted from quite spontaneously designed VET courses towards more organised forms and developed educational structures in the course of history.

The spontaneously designed courses are usually designed as an answer to immediate short term demands for qualifications, which are missing. The **spontaneous conception of VET** (type I) have no rules for design of VET programmes.

A more modern approach is based on analyses of possibilities for students to find their places at the labour market and on prerequisites of those students who enter VET. The **analytical conception of VET** (type II), which is derived from this approach, enables to define common as well as different circuits of working activities or different activities with the same requirements for coping with theoretical knowledge. Common education programmes or their parts for related occupations are developed on the basis of the concept. This concept provides a higher degree of adaptability in terms of assertion of graduates in a certain professional field.

Table I

Important aspects of the VET concepts

Type	Conception of VET	Origin	Structure of VET programmes	Overlapping contents
I	Spontaneous	haphazard	ad hoc	casual
II	Analytical	analyses of labour market demands in different fields	Common parts or subjects and special subjects	common general and/or initial vocational education
III	Competence based	analyses of activities for definition of key activities (competences) in broad fields	Similar structures of different contents with special parts for applying of broad competencies	Contents leading to broad competences and the higher numbers of specialisations in very broad programmes

Deeper analysis of working activities and selection of those activities, which are decisive for long-term qualifications as well as for theoretical and practical training (competences), represents the youngest and most prospective conception. This **competence based conception of VET** (type III) gives to participants of VET courses abilities for developing and adapting their special skills. It gets over the current development of education programmes for traditional professional qualifications but it is very prospective.

We can state from the point of common and different features of VET qualification that:

- in type I, overlapping of different qualifications is casual. It appears only if two or more educational programmes are designed on the basis of similar educational goals; but no requirements for some broader or common aims of VET are usually involved into the individual education programmes;
- in type II, all educational programmes qualifying for occupations are influenced by similar technology and technological processes and they have a common background. They differ only in their specific parts of qualification. This parts of qualification do not require higher educational abilities than they are given or needed for acquisition of the common background.
- In type III, groups of educational programmes designed for similar competencies offer a broad framework of qualification. Individual educational programmes can differ by their specialisations, which serve as environment for acquisition of the broad competences and for learning how to apply broad competences for special working tasks.

Features of national educational systems

A type of an educational system, i. e. its predominant features, usually influences setting up the scope of acquired qualifications, due to close connections of VET systems and educational systems.

Different features are mixed by different ways in national educational systems. Many of them can be hidden because they influence every day practice of education in a county for ages or very long time at least. We consider three of them very important for a scope of qualifications because they influence a common educational standard of those who are involved into education.

The main features influencing national schemes are:

- **Selectivity** connected with different educational routes with different aims of education and possibilities of a future progression
- **Integration** characterised by common educational aims followed usually by one type of an educational institution
- **Plurality** that accepts common important educational aims (standards) irrespectively of educational routes offered by different educational institutions

We can theoretically imagine educational systems designed on the basis of only one feature. Such systems would be at the tops of a triangle similar to the triangle in Figure 3. Then we could try to find proper places for national educational systems according to proportions of individual features involved.

It is almost impossible to find precise analytical criteria of the process. Nevertheless, it is possible to develop some models helping to explain how the main features influence common educational standards. Simple diagrams of such different models are compared in Figure 4.

Figure 4 Different models of educational schemes based on predominant features

Fig4.bmp

The first, **selective** type is a **model,** in which educational programmes are arranged by a **different way with minimum common features**. Various educational objectives are set up for individual educational programmes. They are differentiated and nobody expects that participants would reach common educational standards. For example, only one stream leads to higher education.

The second, **integrated** type is a **model** with a **long period of common education**. Particular directions or educational programmes with specific e.g. vocational aims follow after **common education** for an overall educational standard (type **1**) or there is a wide **variety in eligible educational routes in the frame of common education** (type **2**). However, the educational standard of many school leavers could be under the level of the standard for admission to universities. Goals of the most VET programmes (subjects or their groups) respect a lower level of those who are vocationally trained.

The third, **plural model** of an educational system is based on **integrated educational objectives**, which are **acquired via various educational paths**. The different paths

follow common (general) goals of education and their own specific educational goals. A part of common goals can be reached through common contents but a considerable proportion of the common goals can be fulfilled through the adoption of specific contents of education and training programmes. This type of educational system enables to reach step by step the level of education for entry to higher education or at least an overall educational standard.

Most important characteristics of the models mentioned above are summarised in Table 2.

Table 2

The concise characteristics of the above mentioned models are summed up in

Type of a model	Selective	Integrated 1	Integrated 2	Plural
Period of common education	Short, if any	long	long	middle
Level of a common educational standard	Low or almost none	given by a standard of compulsory education	given by a minimum of common subjects in compulsory education	given by approved standards for educational programmes involved
Level of an educational standard for admission to academic study	Given by routes entitled	given by educational programmes entitled	given by a minimum of subjects demanded	given by approved standards for educational programmes involved

Figure 5 Positions of the models with predominant features

Fig5.bmp

Figure 5 shows positions of the discussed models in a triangle mixing all three main features. Actual national schemes usually combine all particular features with tendency to abolish or weaken selective features or exorbitant integrative features. A shift to strengthen plural features is quite evident.

The development of the scope of qualifications in Finland

In Finland, the level of attainment of general qualifications has been pushed upward in two ways.

Firstly, through the rising participation in general education among younger age cohorts since the compulsory school reform in 1968 and secondly through "generalisation" of vocational curricula as a tendency to become more attractive vocational training and more respondent to the demands of working life.

The "generalisation" within vocational education programmes was parallel to shifting from job-specific qualifications towards qualifications preparing students for a group or family of occupations within an individual occupational field. Between the 1970s and the 1980s the number of different school- and college-level qualifications fell from 600-700 to 250.

The reform of 1980s adopting a part of general studies in the beginning of each vocational qualification kept the lower and higher vocational lines differentiated. Even though it was formally possible to continue studies from school level to college level vocational education (special quotas were reserved for those with school-level vocational qualification to continue in HE). It did not prove a competitive option with respect to general upper secondary schools.

Attempts have been made to use systematic empirical analyses to ensure that the demands of vocational preparation are taken into account in the process of curriculum design, for instance in the 1990s.

In the curricular reform of vocational upper secondary education in 1995 the modularised general subjects could be integrated in vocational studies. Also the parallel lower and higher vocational lines were integrated into a successive structure allowing student to continue vocational studies towards higher vocational qualification. Parallel to this structural change, the college-level qualifications were raised to AMK qualifications.

After the 1995 reform there were 77 school-level vocational qualifications. However, in accordance with the aims of a new curriculum reform being implemented in 1998-2001, their number is to be increased to 100. As regards vocational upper secondary education, job-specific vocational content has been given more room while the amount of general education will not be further increased. However, an experimental scheme in which vocational and academic schools co-operate to provide vocational students with an enhanced general education component reveals a greater emphasis on general education. Within the same scheme, students who have chosen to focus on academic upper secondary education may include in their study programmes vocational modules from vocational education establishments. This experimental scheme, allowing completion of dual qualifications, became nation-wide in 1999.

Qualifications are standardised at present to last three years and to enclose a half-year on the job - training period. From 1988 to 1996, organisation of qualifications in relation to one another and sectors has been strengthened. Integration of separate qualifications into a system has taken place. The sectors of culture, and humanities and education have been adopted as clear parts of the national system of vocational education, while the sector of renewable natural resources has become weaker. This reflects changes between the weight of different sectors on the labour market and production.

In Finland the official aim was accepted to design curricula of initial vocational education on the base of analyses dealing with working activities and core skills defined from them (see type III of the VET concepts). It has been explicitly set for example in the curricula reform of vocational education in 1995. The national core curricula were based on brief descriptions of "vocational field, its operating environment and changes in it and the operational entities and functions".

Also the curricula reform to be completed gradually in 1998-2000 and implemented in 1998-2001 sets similar aims. The curricula will be planned in specific projects for each branch under the Ministry of Education. These projects have been anticipated by collecting information on the qualifications demanded by working life in each field. The field specific curricula projects consider the views of branch specific education committees, schools, working life, working life organisations, teachers, headmasters and students. But Finnish descriptions were found very limited and narrow compared to Canadian and American descriptions (Dictionary of Occupational Titles, Canadian classification and Dictionary of Occupations). Reasons for the limits of utilising systematic, empirical analysis of are the limited resources against the fact that analysing working activities is costly, time-consuming and anticipation of the needed new skills is difficult.

Following conclusions may be drawn on the effect that reforms have had on the role of VET in relation to the educational structure (see Figure 3).

The curricular reform of vocational education on the upper secondary level in 1980´s sustained a clearly selective system and did not really mean moving towards more integrative model even though general education part was integrated in the beginning of programmes. Selective features remained strong: upper secondary level vocational programmes based on comprehensive school background did not offer possibilities to continuing education in HE to the level that general upper secondary background did.

The curricular reform of 1995 has meant moving towards integrated type 2 by introducing modularity. The clearly separated and selective character of general upper secondary education remains strong though and thus Finnish educational system is best described as a combination of the plural model and integrated type 2. Vocational and academic schools cooperate within the experimental scheme, which is now nation-wide. In the scheme is possible for the students of vocational line to choose the general part at different stages of their studies (integrated type 2) and vice-versa students of general schools can choose vocational subjects. It is possible to complete "dual qualifications" including both matriculation examination of general upper secondary schools and a vocational qualification side by side (plural type).

The development of the scope of qualifications in the Czech Republic

In the Czech Republic, upper secondary technical education programmes with a dual orientation have a long tradition especially the main type of the educational programmes with dual orientation preparing middle level technicians and other professions at the level of management. The type of VET programmes was followed by the comparative analysis. Other VET programmes with dual orientation involve very skilled workers and adults, which are qualified at the secondary level. They emerged in their present forms as sectors of the national educational system in the 70's.

All types of the vocational programmes with dual orientation involve a part of general education slowly but regularly rising and they give the same possibility to follow study at higher education as graduates from upper secondary general schools have.

Two large reforms in 1967 and 1984 led to a certain decrease in the number of study branches. Thus, the number of industrial branches of study fell from 95 to 54 in 1967, while in 1984 the number of all the branches of study covered by the analysis (excluding those preparing students for the arts) fell from 88 to 70. Some new occupations involving new types of qualification requirements (e.g. data processing) appeared between these dates. Before the mid-1980s, increasing general education and basic vocational education components were incorporated into study programmes. It was a response to analyses of the requirements of authentic job activities.

Paradoxically, the decrease in the proportion of specific vocational subject matter forced schools to choose the specific educational content from narrower or specialised fields that allowed the in-depth application of broader theoretical knowledge and basic vocational skills. This possibility was involved in the middle of 80's and the process of specialization of some parts of curricula in the given broader framework started largely after velvet revolution (1989). As a main reason of the process is usually considered that schools wish to offer qualifications asked by labour market but in fact it is a clear example of a shift to external feature of the labour market in the Czech Republic. Some attempts to give relatively stable rules to its have led to the construction of a shared framework setting out the most important, indispensable components of the given qualification within the context of the principal branches of study. Such principal study branches cover slightly varying vocational programmes constructed individually by different schools to prepare students for very similar job positions, functions or professions.

Comparison of the development of qualifications in Finland and the Czech Republic

A short overview of the collected data is in Table 3.

Despite Finland and the Czech Republic have different historical backgrounds and types of educational schemes; a similar tendency may be recorded in Finland and in the Czech Republic. In the 1990s, strict differentiation between types of educational institution began to break down in Finland as a result of a reform that made use of the modular structures introduced as an aspect of the co-operation between general and vocational schools within experimental schemes providing dual qualifications.

Table 3

A short overview of the results of analyses at the national levels

Aspects of a development	Czech Republic	Finland
General education in the VET programmes	Increase **from 35% to 42%** GE in VET programmes with dual orientation in the 80's **45%** GE in all VET programmes with dual orientation at present	**Involvement of GE into VET** programmes in the 80's **GE modules** combined with VET modules in personal study programmes at the end of the 90's
Branches of study Numbers in the 80's	Decrease **from 104 to 93 (from 88 to 70** – without a group of study branches for arts)	Decrease **from 650 to 255 134** at school level
branches of study numbers in the middle of the 90's	**124** in 28 sectors (**102** – without sector of arts)	**77** at school level in 30 sectors in a half of the 90's
Branches of study Numbers at the end of the 90's	**98 (90**- without sector of arts)	About **100**
Analyses of working activities or professions	In industrial sector at the beginning of **the 80's**	At the beginning of **the 90's**
Features of the national educational system	**Important plural features** (VET programmes in STS at the same level as in SGS) **were strengthen** at the end of 70's by introducing dually oriented VET programmes for skilled workers and adults qualified at secondary level	**Selective features were depressed** by introducing of modularity in the middle of 90's **(shift to integrated type** 2 of an educational scheme) **and** by introducing possibility to follow GE and VET modules in different types of schools **(plurality)**

In the Czech Republic, vocational programmes giving dual qualifications, hitherto taught exclusively at secondary technical schools, were introduced also at secondary vocational schools at the end of the 1970s. Both decisions had the same aim of abolishing strict differentiation between the institutions formerly offering different levels of (vocational) education. A second reason in both countries was a wish to improve the quality of teaching on the vocational programmes.

The scope for job-specific vocational education and training is becoming limited due to a rising need of general education and common (basic, core) vocational education within the framework of vocational programmes. This need leads to modifications not only in educational programmes but also in conceptions of the nature of vocational education programmes as such. In the 1980s and 1990s educational programmes were designed on the basis of more in-depth analytical studies. This analyses studies

led, as one of more reasons, to the decrease in the number of vocational qualifications offered in initial vocational education.

This feature can be illustrated well by the rapid decrease of vocational qualifications from 1970 to 1990 in Finland and by successful activities in restructuring of qualifications given by the branches of study in the Czech Republic. These results are in a good correspondence with overall analyses of working activities and with development in division of labour. On the one hand they are underpinned by the analyses. On the other hand, newly developed professions and changing concepts make simple comparisons of the given data difficult in many cases.

From the general point of view we can summarise that there are differences as well as similarities. The differences are in historical background, types of educational schemes and timing of changes and provisions accepted in the schemes and processes leading to changes.

Similar tendencies are:

- Restriction of differences between different types to educational institutions but there is no trend to abolish them (shift to plurality).
- Analytical studies influenced the design of VET programmes connected with
    - increase in a part of general education in VET programmes;
    - decrease in numbers of VET programmes (i.e. broadly applied qualifications).

But

- Rising numbers of the newly emerging professions and developed VET programmes (specialisations) make simple comparisons difficult.

The process mentioned above does not mean that the level of skills acquired during the process of education and training falls down with decreasing specialisation of education and training. There is a way, how to keep the level. Education and training process has to concentrate on the most important knowledge and skills.

The following two aspects help to the concept.

Firstly, it is rising acquisition of general knowledge and skills enabling to develop principal or key skills, which are connected with the field of the working activities given in the frame of broader branch of study.

Secondly, it is training in application of knowledge, mental and/or manual skills in final parts of educational programmes. This training is connected with learning of some special knowledge that is used as a background of the application process.

If the educational programme is structured well, its last phase can serve also as an instrument, which helps to increase adaptability for some special activities and or functions in the frame of broader qualification. Such specialisation can attract an interest of those who are interested in it. This function is not in contradiction with broader scope of qualification acquired by the educational programme. A limited space for such specialisation also opens possibility for development of a new training

and learning methods and new educational contents for the future broader applications.

The concept mentioned above is implemented slowly into the framework of technical education in the Czech Republic. This implementation lasts for years as a result of conflicts between contradictory interests of many partners, which are involved into the development of vocational education and training. It seems that Finland is on the right way to follow this concept also.

Conclusion to the future concept of VET qualifications

Present demands lead to a broader adaptability thus to the broader scope of qualifications. Specialisation of VET decreases. That is why concepts of VET slowly change (or have to change) to keep level of knowledge and skills, which is raising contrary to decreasing specialisation of VET.

Future concepts will concentrate on acquisition of general knowledge and so called key skills important in larger fields of the working activities covered by very broad branches of study.

An important function of VET will be also training in application of the acquired knowledge and key skills. This training will need special (broadly interchangeable) parts involving special knowledge and practice. A primary task of the parts will be to teach how to learn in special knowledge and skills in a future working life.

Future VET qualifications will change permanently but they could be constructed on the basis of a respected framework. An important pillar of the framework should be the level of VET, recognised as qualification for entry to higher education.

Conclusions to the used comparative method

The framework of the given factors helped us to see some details in development at national levels as well as in broad contexts. Some common or generalised conclusions to a scope of VET qualifications could be supported by facts coming from different educational structures. From this point of view the method appears to be prospective.

References

Ministry of Education.: Koulutuksen kehittäminen. Harjoitetun koulutuspolitiikan tarkastelua ja hahmotelmia peruskoulun jälkeisen koulutuksen kehittämisestä. [Developing education. A paper on educational policy and preliminary future plans concerning the development of post-compulsory education, 16.1.1989] Helsinki: Author.

Stenström, M-L.: Opintojen keskeyttäminen keskiasteen ammatillisessa koulutuksessa. [Interrupting of studies in the vocational secondary-level education] In J. Ekola (Ed.), Ammatillisen koulutuksen koulunuudistus. Reform of vocational secondary level education](pp.273-291) (Publication Series B. Theory into Practice No. 56). Jyväskylä: University of Jyväskylä, Institute for Educational Research.

Ahola, S., Kivinen, O. & Rinne, R.: Koulutuksesta työelämään. Koulutus- ja ammattirakenteiden kytkeytyminen. [From education to working life. The links between educational and vocational structures]. Koulutussosiologian tutkimusyksikön raportteja 7. Turku: Turun yliopisto.

Kivinen, O. & Rinne, R. (Eds.): Educational Strategies in Finland in the 1990s. Research Unit for the Sociology of Education. Research Reports 8. Turku: University of Turku.

Kivinen, O., Rinne, R., Kankaanpää, A., Haltia, P. & Ahola, S.: Ammatti, koulutus ja kvalifikaatiot. Yhdysvaltojen ja Kanadan työperäiset ammattien luokitusjärjestelmät ja niiden sovellusmahdollisuudet Suomessa.[Vocation, education and qualifications. The categorizations of vocations originated from working life and possibilities for their adoption in Finland.] Koulutussosiologian tutkimuskeskus, Raportteja 17. Turku: Turun yliopisto.

Steedman, H.: Assessment, Certification and Recognition of Occupational Skills and Competences. Vocational training, 1994, NO. 1, p. 36-42.

Kankaanpää, A.: Ammatin kuvaus koulutuksen apuna. Ammatin kuvausjärjestelmän rakentamisen näkökulmia, ongelmia ja ehdotuksia. [Occupational Description as an Aid to Education. Approaches, Problems and Suggestions for the Construction of an Occupational Description System.] Helsinki: Opetushallitus.

Münk, D.: Berufsbildung in der EU zwischen Dualität und "Monalität" - eine Alternative ohne Alternativen? Berufsbildung, 1997, no. 45, p. 6

Metsämuuronen, J.: Tulevaisuuden kvalifikaatiovaatimusten luokittelu painoarvon ja muutosintensiteetin mukaan. [The categorisation of qualifications demanded in the future according to their demand and orientation towards change]. Futura 3, 30-37.

Viceník, P.; Švanda, I: Factors which have an impact on the final assessment of education and vocational education: the example of the Czech Republic. European Journal of Education, vol. 34, n. 2, June 1999, p. 195

Viceník, Petr - Virolainen, Maarit - Konopásková, Anna: The concept of vocational qualifications. Changes in a scope of individual VET qualifications (considered against the background of different features and educational concepts underlying national VET schemes). Joint study. VÚOŠ, February 2000, 36 pp.

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Title:

What works in enhancing HRD effectiveness?

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Abstract

What works in enhancing HRD effectiveness?

The paper will present the findings from a survey among 44 Dutch companies and four groups of employees within each company, indicating that the process of strategic HRD aligning is an important predictor for HRD effectiveness. The (perceived) HRD effectiveness is even extra positive, as the mean company score on the quality of HRD aligning is higher. The findings also indicate that no differences in perceived HRD effectiveness was observed for some contextual factors (e.g. size and structure of the company, structure of the HRD function, transfer and evaluation conditions). On the other hand, the findings reveal some factors enhancing or impeding HRD effectiveness, because positive or negative correlation was found between contextual factors such as the quality of the HRD programme, HRD climate, the form the HRD programme takes, position of the HRD department, and perceived HRD effectiveness. These findings might give some explanation for the dissatisfying results of many HRD programmes.

What works in enhancing HRD effectiveness?

Research question

HRD effectiveness is apparant from the effects of HRD programmes and other learning interventions. This paper focuses on the question which characteristics can been linked to differences in HRD results and are considered to have an impact on HRD effectiveness. The main research question is: which characteristics will enhance or impede HRD effectiveness?

Theoretical Framework

HRD effectiveness is conceived as the extent to which HRD goals and objectives are achieved. In order to define the level of effectiveness, HRD effects can be measured at learning, behavior, and results levels. Literature and research reveal that to be effective, HRD programmes and other learning interventions have to be closely linked to the company's situation. It here concerns the so-called strategic HRD aligning process taking place within a specific organizational context. The aligning process itself as well as the close link with contextual characteristics are seen as factors affecting performance outcome from HRD programmes and other learning activities, and with that HRD effectiveness.

Based on rational policymaking models and on features of decision-making models, the process of strategic HRD aligning is characterized by four aspects: participation, information, formalization, and decision-making. Participation means the involvement of participants at the various organization levels in the aligning process. Information refers to the data needed to gain more insight in those company's situations which may call for HRD interventions. Formalization refers to the more or less formal consultative structures and information gathering procedures in the aligning process. Decision-making is concerned with the strategic choices of the aligning process, mainly the choice for HRD goals and objectives the HRD programmes are intended to. It is assumed that by paying attention to these four aspects HRD aligning will enhance HRD effectiveness.

According to contingency theory it is often assumed that there is a close link between contextual characteristics and the way in which organizational processes, such as the aligning process, evolve. Deviating from an appropriate model, contingency theorists maintain, creates a lower degree of organizational effectiveness. Thus the context seems of utmost importance. Literature indicates a number of those contextual characteristics exerting influence on organizational effectiveness. Considering the HRD perspective, those characteristics refer to the HRD function, which is usually shaped into an HRD department, and the organizational context in which the function is embedded. In the paper these will be further explained and elaborated.

Method

The survey reported here was carried out as part of a larger one among Dutch companies. These companies were selected from a national database from the Association of Chambers of Commerce.

Sample. Two company related factors were used as selection criteria: the size of the company, and the economic sector to which the company belongs. Following these criteria, 44 companies with more than 500 employees were selected from the aforementioned database: 11 from the industrial sector and 33 from the financial and commercial services sector. In each of the organizations one HRD programme was selected (from two frequently recurring fiels of HRD activities, automation and social skills), This resulted in 23 selecting automation and 21 social skills programmes. Within the companies, four categories of respondents were selected, the HRD company representative, a maximum of 15 participants of the selected programmes, their supervising managers, and (if present) their subordinates. All groups can be considered as having an interest in the results of the HRD programmes, the so-called stakeholders.

Data collection. Data were collected in 1997, using four comparable questionnaires sent to 767 representatives of the four groups of stakeholders (44 HRD company representatives, 357 HRD participants, 242 of their supervising managers, and 124 of their subordinates). The questionnaires were designed to collect information on variables derived from the aforementioned theoretical framework. They comprised groups of questions and statements. The questions had both precoded and open answers, the statements had answers on a 5-point scale, running from 1 (totally disagree/not al all) to 5 (totally agree, completely) and a possible 6 score (for unknown, no idea, or not relevant).

Response. For the automation response group 752 questionnaires was sent out (to 23 HRD company representatives, 320 trainees, 277 managers, 132 subordinates). For the 'social skills' group 740 questionnaires were sent out (to 21 HRD company representatives, 292 trainees, 251 managers, 176 subordinates). For both groups, all HRD company representatives filled in the questionnaire. The response rates for the other groups of respondents are for the 'social skills'group: 63% of the trainees, 49% managers, and 49% subordinates, and for the group of companies with automation programmes: 54% of the trainees, 43% of the managers, and 29% of the subordinates.

Analysis. To arrive at answers to the research questions descriptive statistics, cross-tabulations, chi-square analysis and one-way analysis of variance were used for the analysis of the data. A factor analysis was used to assess the construct validity of the scales. The two-stage sampling design (first a sample of companies, then a sample of respondents within each company) resulted in a hierarchical, nested datastructure. Multilevel statistical models are suitable for handling data with such a structure. These models allow us to make statistical inferences both at individual respondent (sample size 767) and company (sample size 44) levels.

Results and importance. The paper will present the findings related to the stated research question, indicating that strategic HRD aligning has a positive effect on (perceived) HRD effectiveness. The (perceived) HRD effectiveness is even extra positive, as the mean company score on the quality of HRD aligning is higher. The findings also indicate that no differences in perceived HRD effectiveness was observed for some contextual factors (e.g. size and structure of the company, structure of the HRD function, transfer and evaluation condition). On the other hand, the findings reveal some factors enhancing or impeding HRD effectiveness, because positive or negative correlation was found between contextual factors such as the quality of the HRD programme, HRD climate, the form the HRD programme takes, position of the HRD department, and perceived HRD effectiveness.

These findings might give some explanation for the dissatisfying results of many HRD programmes.

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